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TRANSCRIPT OF RECORD

Supreme Court of the United States

OCTOBER TERM, 1937

No. 72

**CROWN CORK & SEAL COMPANY, INC.,
PETITIONER,**

vs.

FERDINAND GUTMANN CO., INC.

**ON WRIT OF CERTIORARI TO THE UNITED STATES CIRCUIT COURT
OF APPEALS FOR THE SECOND CIRCUIT**

PETITION FOR CERTIORARI FILED MAY 20, 1937.

CERTIORARI GRANTED OCTOBER 11, 1937.

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VOL. III

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records
of this office of the File Wrapper and Contents, in the
matter of the

Reissue Letters Patent of


Albin H. Warth, Assignor, by Mesne Assignments,
to Crown Cork & Seal Company, Inc.,

Number 19,117,

Granted March 20, 1934,


for

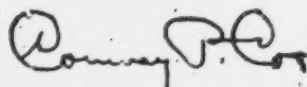
Improvement in Processes of Producing Closures.



IN TESTIMONY WHEREOF I have hereunto set my
hand and caused the seal of the Patent Office to be
affixed, at the City of Washington, this nineteenth
day of September, in the year of our Lord one
thousand nine hundred and thirty-four and of the
Independence of the United States of America the
one hundred and fifty-ninth.

ATTEST:


Chief of Division.


Commissioner of Patents.

1144

1388

3

NUMBER (Series of 1925)

707995

REISSUE NO. 19,117

DATED MAR 20 1934

1934

DIV. 1 L

(EXR'S Book) 27-129
(33)

Name ALBIN H. BARTH

Admitted by me as agent to Brown Cork & Seal Company, Inc.,
New York, N.Y., a Corp of New York.

of BALTIMORE

State of MARYLAND

Invention

PROCESS OF PRODUCING CLOSURES

APPLICATION FILED COMPLETE, JAN 23, 1934

PARTS OF APPLICATION FILED

Petition, Specification, Oath,
Fee \$30, Old Patent, Abstract
of Title, / Sheets Drawings,

ORDERED

JAN 23, 1934

Original Patent No. 1,788,260

Date JAN. 6, 1931

Examined and Passed for Issue *H. J. Brown* Ex. Dto. 14, 1934

Notice of Allowance *February 10* 1934

Attorney CUSHMAN, DARBY & CUSHMAN AMERICAN SECURITY BLDG CITY

Associate Attorney

No. of Claims Allowed 4 Class 113-80 Part 3 in 08

Title as Allowed Process of Producing Closures

(New)

707995

1

MAIL DIVISION

JAN 23 34

TO THE COMMISSIONER OF PATENTS:

U S PATENT OFFICE

JAN 30 1934

DIVISION 14

Re 19117

*abstract of title
to attorney*

Your Petitioner, ALBIN H. WARTH, a citizen of the United States, residing at Baltimore, State of Maryland, and whose post-office address is C/o Crown Cork & Seal Company, Inc., Baltimore, Maryland, prays that he may be allowed to surrender the Letters Patent No. 1,788,280 for an improvement in PROCESS OF PRODUCING CLOSURES granted to him Jan. 8, 1931, whereof CROWN CORK & SEAL COMPANY, INC., a corporation of New York, whose principal place of business is at Baltimore, Maryland, in whose behalf and with whose assent this application is made, is now the sole owner, by assignment, and that Letters Patent may be reissued to the said CROWN CORK & SEAL COMPANY, INC., for the same invention upon the annexed amended specification. With this petition is filed an abstract of title duly certified as required in such cases.

And he hereby appoints, CUSHMAN, DARBY & CUSHMAN, a firm composed of Arlon V. Cushman, John J. Darby and William M. Cushman, of Washington, D. C., Register No. 7196, his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the patent, to sign the drawings and to transact all business in the Patent Office connected therewith.

Signed at Baltimore, Maryland, this 24th day of

January, 1934.

Albin H. Warth

CROWN CORK & SEAL COMPANY, INC., assignee of the entire interest in the above mentioned Letters Patent, hereby, through its duly authorized executives, assents to the accompanying application.

Richard E. Gustafson
Vice-President

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

Be it Known, that I, ALBIN H. WARTH, a citizen of the United States, residing at Baltimore, State of Maryland, have invented new and useful improvements in PROCESS OF PRODUCING CLOSURES, of which the following is a specification:

News 4 This invention relates to a method of producing closures of the type in which a sealing disc has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disc usually made of cork. For some uses, the sealing discs are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork discs and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disc and the spot is given an intumed rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork discs by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shelf itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the

tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

19 It is desirable, in the use of facing discs of the character above referred to, that the adhesive stratum be as thin as possible and yet be continuous throughout the entire area of the facing disc, and particularly that it be uninterrupted about the edge of this disc, since at this point the disc should be firmly bonded so as to effectively seal the joint about the edge of the facing disc. When cutting and applying the discs of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disc cut from the strip

and the material of the cap to which such disc is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disc applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing discs and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is con-

sidered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar^W gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or China^Wood oil. The damar^W gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

14 While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of feil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disc which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300°F. maintained for about 30^{min} minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of

the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesives from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing discs. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disc, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in

1000 area with the disc.

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1396
This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

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Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.



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The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marra, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.


As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disc it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.



What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

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4. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

(Sig)

In testimony whereof, I have hereunto set my hand
this 22nd day of September 1934.

Albin H. Warth

Albin H. Warth

O A T H

CITY OF BALTIMORE)
STATE OF MARYLAND)^{ss.}

ALBIN H. WARTH, the above named Petitioner, being duly sworn, deposes and says that he does verily believe himself to be the original, first, and sole inventor of the improvement set forth and claimed in the foregoing specification and for which improvement he solicits a patent; that deponent does not know and does not believe that said improvement was ever before known or used; that deponent is a citizen of the United States of America, and resides at Baltimore, State of Maryland; that deponent verily believes that the Letters Patent referred to in the foregoing petition and specification and herewith surrendered are inoperative, for the reasons that the specification thereof is defective and insufficient, and that such defect and insufficiency consists in the typographical error in the specification that the coating is dried at a temperature of about 300°F. for thirty minutes instead of three minutes, and particularly in the failure to submit claims which include or recite that step in the method which involves the application of pressure, for example, by a plunger, while the thermo-plastic adhesive uniting the center spot to the cork disc is permitted to cool; and deponent further says that the errors which render such patent so inoperative arose from inadvertence, accident or mistake, and without any fraudulent or deceptive intention on the part of deponent; that the following is a true specification of the errors which it is claimed constitute such inadvertence, accident or mistake relied upon:

As indicated by the record of the patent, applicant was the first to invent a process including the steps set forth in the two claims appearing in the original patent. The original application was prosecuted by applicant's attorneys with full recognition of this fact. Moreover, one step in applicant's method as disclosed in his specification is that the cooling of the assembled unit "may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suit-

able manner, being carried out to the congealing point of the coating or adhesive material on the strip from which the center spot is punched. Since the issuance of the patent, however, and only very recently, it has come to applicant's attention that the claims allowed do not recite, in addition to the steps therein set forth, the step of applying pressure to the assembled unit while the coating or adhesive material is congealing. There was no intention either on the part of applicant or his attorneys to omit claims to this step of the method and, as a matter of fact, applicant has always been under the impression that the patent, as granted, included claims covering this step in the method. More particularly, the defect in the specification resides in the failure to set forth the invention somewhat more fully than the present claims by the presentation of claims such as the following:

3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

4. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said

adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

That such errors so particularly specified arose as follows: Applicant explained to his original attorneys the complete method as set forth in the original application filed January 7, 1927, as Serial No. 159,743, and the said specification was prepared on the basis of information applicant conveyed to said attorneys. Upon the issuance of the patent on January 6, 1931, applicant reviewed the specification and claims and, being unfamiliar with the interpretation of claims, assumed from the fact that the specification referred to the application of pressure, and from the further fact that the claims allowed referred to the cooling and hardening of the adhesive, that this pressure step of the method was covered. Applicant is not skilled in patent procedure or the interpretation of claims and until recently informed by his attorneys that claims specifically defining the application of pressure would be allowable, in addition to the claims of the patent, and are in fact required in order to cover this additional step, did not consider that there was any defect or insufficient in the patent. When it did come to applicant's attention that the step of applying pressure during the cooling operation should be expressly recited in the claims, he immediately caused his present attorneys to present this application for reissue.

Alvin H. Wark

Sworn and subscribed to before me this 24th day of January, 1934.

Frederick W. DeKorte
Notary Public.

BY COMMISSION EXPIRES MAY 8, 1935

SEAL.



1788260

THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME:

Whereas ALBIN H. VANDERBILT, of Baltimore, Maryland,
 assignor, by means of assignments, to CROWN CORK & SEAL COMPANY,
 INC., of New York, N. Y., a corporation of New York,

PRESENTED TO THE COMMISSIONER OF PATENTS A PETITION PRAYING FOR
 THE GRANT OF LETTERS PATENT FOR AN ALLEGED NEW AND USEFUL IMPROVEMENT IN

PROCESSES OF PRODUCING CLOSURES,

Metal Tail Spot Crown

A DESCRIPTION OF WHICH INVENTION IS CONTAINED IN THE SPECIFICATION OF WHICH
 A COPY IS HEREBY ANNEXED AND MADE A PART HEREOF, AND COMPLIED WITH THE
 VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED, AND

Whereas UPON DUE EXAMINATION OF SAID CLAIMANT IS
 ADJUDGED TO BE JUSTLY ENTITLED TO UNDER THE LAW.

NOW THEREFORE THESE LETTERS PATENTS ARE TO GRANT UNTO THE SAID

CROWN Cork & Seal Company, Inc., its successors

OR ASSIGNS

FOR THE TERM OF SEVENTEEN YEARS FROM THE DATE OF THIS GRANT

THE EXCLUSIVE RIGHT TO MAKE, USE AND VEND THE SAID INVENTION THROUGHOUT THE
 UNITED STATES AND THE TERRITORIES THEREOF.

In testimony whereof, I have hereunto set my
 hand and caused the seal of the Patent Office
 to be affixed at the City of Washington
 this sixth day of JANUARY,
 in the year of our Lord one thousand nine
 hundred and thirty-one, and of the
 Independence of the United States of America
 the one hundred and fifty-fifth.

Attest:

B. P. Nathan
 Law Examiner.

Thomas E. Robertson
 Commissioner of Patents

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PAGE

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Jan. 6, 1931.

A. H. WARTH

1,788,260

PROCESS OF PRODUCING CLOSURES

Filed Jan. 7, 1927

Fig. 1.

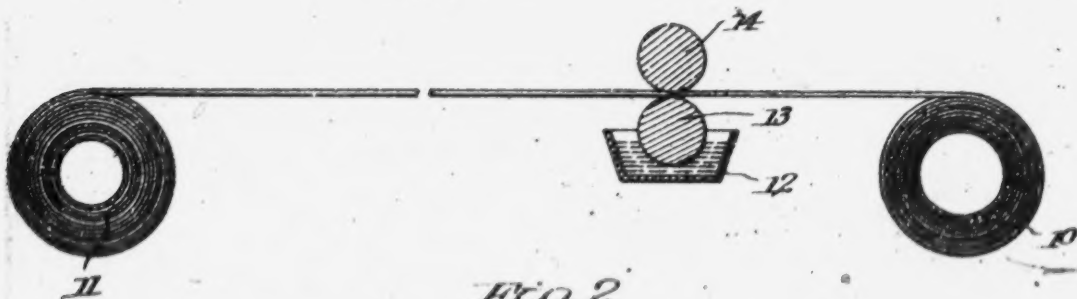


Fig. 2.

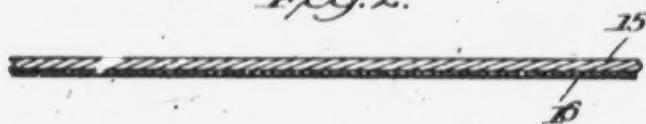


Fig. 3.

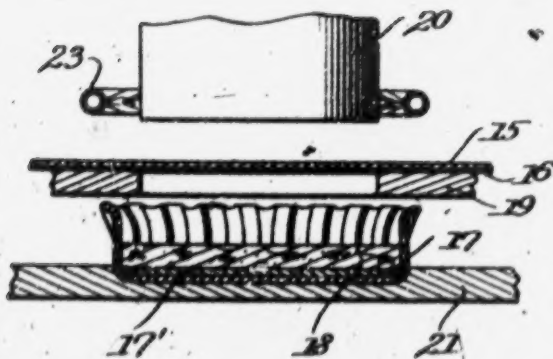


Fig. 4.

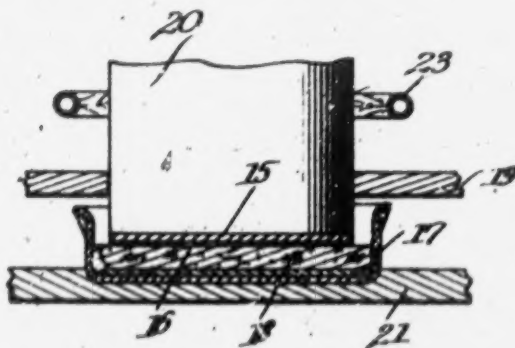


Fig. 5.

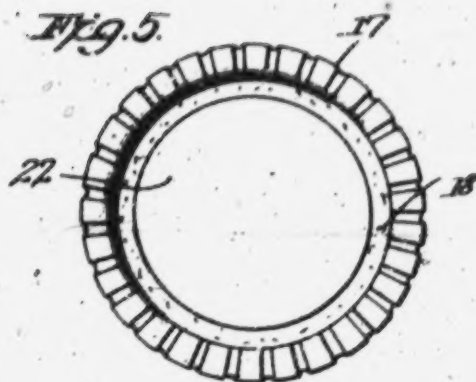


Fig. 6.



Inventor

Albin H. Warth,

By *Cushman, Bennett & Co.*

Attorneys

Patented Jan. 6, 1931

1,788,260

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
CROWN CORK & SEAL COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF
NEW YORK

PROCESS OF PRODUCING CLOSURES

REISSUED

Application filed January 7, 1927. Serial No. 159,743.

This invention relates to a method of producing closures of the type in which a sealing disk has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an intumed rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum

of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a water-proof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shell itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing

bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine, to which

is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300° F. maintained for about 30 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired. After the coating is dry, the metal foil spots

are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally

disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat

and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

In testimony whereof, I have hereunto set my hand.

ALBIN H. WARTH.

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Jan. 6, 1931.

A. H. WARTH

1,788,260

PROCESS OF PRODUCING CLOSURES

Filed Jan. 7, 1927

Print of drawing as
originally filed.

Re 19117
3-20

Fig. 1.

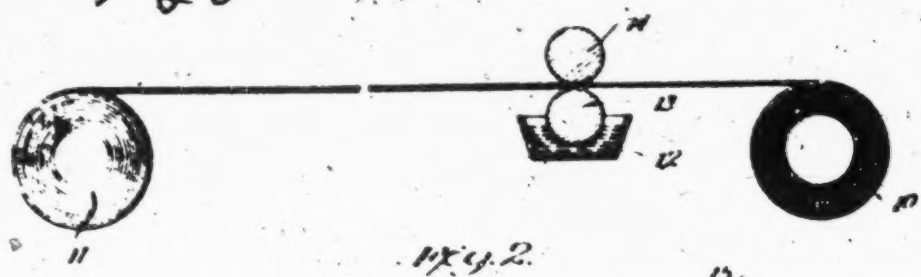


Fig. 2.

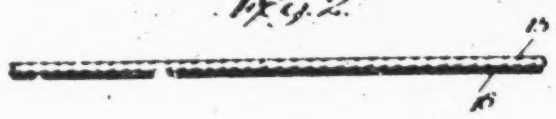


Fig. 3.

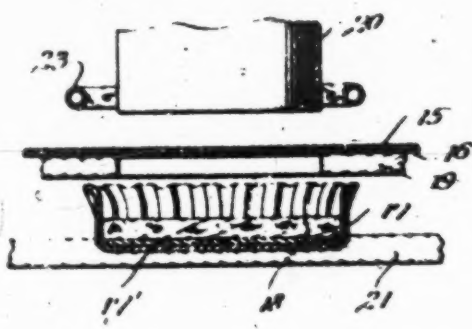


Fig. 4.

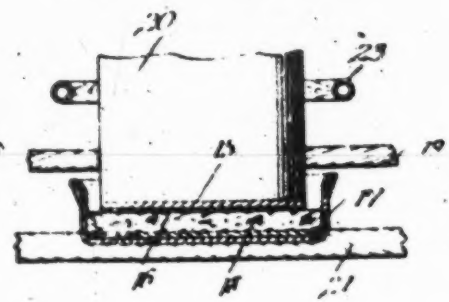


Fig. 5.

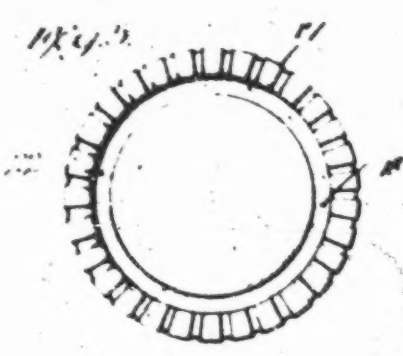
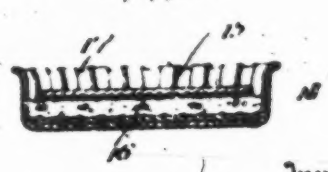


Fig. 6.



Inventor

Alvin H. Warth.

Cushman Regent & Co.

Attorney

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23 80

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Div. 14

TITLE REPORT

No. 1,788,260

Name Albin H. Warth

The title appears from the assignment records to be vested in:

Crown Cork & Seal Company, Inc., New York,
N. Y., a Corp. of New York. (mesne)

Examined up to and including Jan. 17, 1934

This certificate dated Jan. 29, 1934

W. H. Gray
Chief of Assignment Division

No further assignments appear to have been received for record including

1170

1414

ARLON V. CUSHMAN
JOHN J. DARBY
WILLIAM M. CUSHMAN

CARROLL J. HIGGINS
MAX C. LOUIS
CORHAM F. FREER
JAMES W. DENT
C. WILLIAM HAYES
RODGER D. GESSFORD
HARRY C. RILEY
KERN E. FOLKERS
GEORGE W. PORTER
JOHN W. HALL

MAIL DIVISION

JAN 23 34

U.S. PATENT OFFICE

CUSHMAN, DARBY & CUSHMAN

ATTORNEYS AT LAW AND COUNSELLORS IN PATENT CAUSES

AMERICAN SECURITY BUILDING

WASHINGTON, D. C.

January
Twenty-three
1934

U. S. PATENT OFFICE

JAN 31 1934

DIVISION 14

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In the matter of Patent to Albin H. Warth,
No. 1,788,260, dated January 6, 1931, please prepare full
size photostatic copy of the drawings and place in the file.

It is respectfully requested that the original
drawings be placed in the file of the reissue application
filed herewith.

Charge the cost to our account.

Respectfully,

Cushman, Darby & Cushman

AVC/G

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for

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Serial No. 707,985

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INOV

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UNITED STATES PATENT OFFICE

COMMERCIAL

February ten, 1934.

Albin H. Warth, assor.,

Sir:

Your application for Reissue for Patent No. 1,788,260
for improvement in Method of Producing Closures

has been examined and allowed. (4 claims allowed)

The patent will be forwarded to you as soon as practicable, in
due order of business.

Very respectfully,

Conny P. C.

James D. Roberts

Commissioner of Patents.



Cushman, Darby, & Cushman,

American Security Bldg.,

Washington, D. C.

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March 20, 1934.

A. H. WARTH

Re. 19,117

PROCESS OF PRODUCING CLOSURES

Original Filed Jan. 7, 1927

Fig. 1.

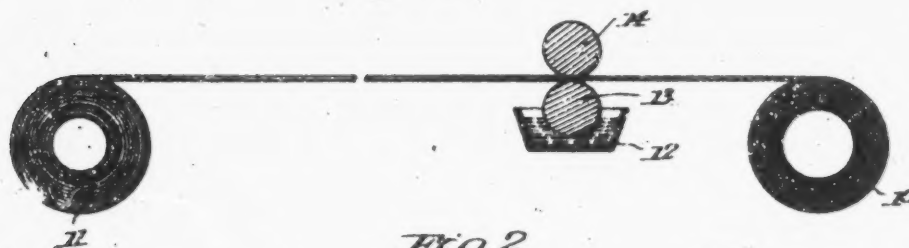


Fig. 2.

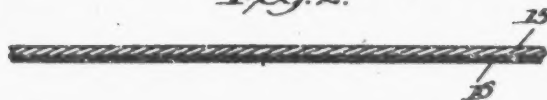


Fig. 3.

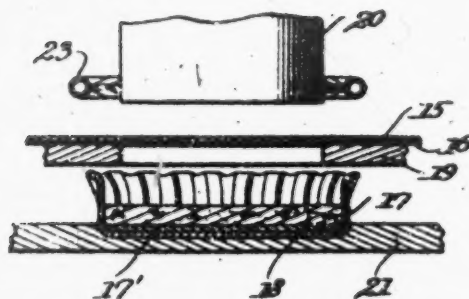


Fig. 4.

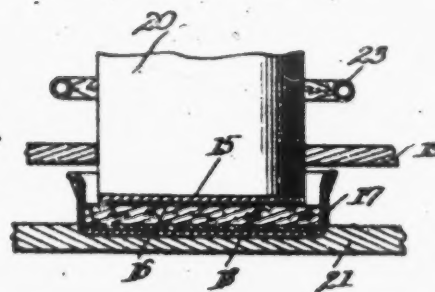


Fig. 5.

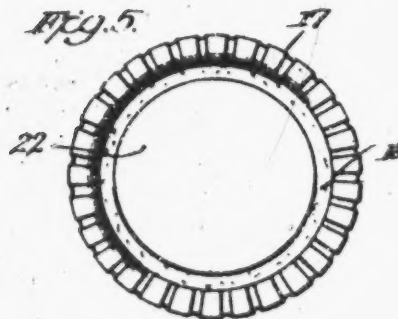
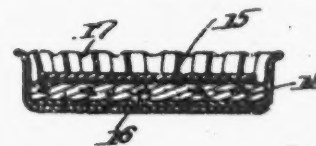


Fig. 6.



Inventor

Albin H. Warth.

By *Cushman, Bryant & Conley*
Attorneys

Reissued Mar. 20, 1934

Re. 19,117

UNITED STATES PATENT OFFICE

19,117

PROCESS OF PRODUCING CLOSURES

Albin H. Warth, Baltimore, Md., assignor, by
mesne assignments, to Crown Cork & Seal Com-
pany, Inc., New York, N. Y., a corporation of
New York

Original No. 1,788,266, dated January 6, 1931,
Serial No. 159,743, January 7, 1927. Applica-
tion for reissue January 23, 1934. Serial No.
707,995

4 Claims. (Cl. 113—80)

This invention relates to a method of produc-
ing closures of the type in which a sealing disc
has a metal foil facing. This type of closure is
characterized by the provision, upon the interior
cushion or sealing disc, of a facing or spot having
a surface which protects the cushion material
from the liquids and gases.

Closures of the well known crown cork type
comprise a metal shell having a skirt and a re-
siliant sealing disc usually made of cork. For
some uses, the sealing discs are given a non-ab-
sorbent, gas impervious and acid resistant fac-
ing of metal foil, e. g. tin foil, or aluminum foil.
Aluminum foil is characterized by the fact that
it is substantially non-absorbent and gas im-
pervious, and for this reason the same and other
materials having similar characteristics are used
to form facing disc or spots upon the cushion
material of crown caps. Ordinarily this facing is
of smaller diameter than the cork discs and such
crowns are known in the trade as spot center
crowns.

These spot center crowns have been produced
in various ways. According to one method a slot
or groove is cut in the cork disc and the spot
is given an intumed rim which is inserted in
the slot. This method is objectionable because
of its expense and because the spots are apt to
drop out. According to another method the spots
are pasted to the cork discs by a casein
paste or a glue. In crowns so made the spots tend
to loosen as the paste or glue is attacked by the
packaged liquids. Furthermore, such method in-
volves difficulties in handling and in applying the
paste or glue. According to still another method
the spots are secured by an underlying tissue of
gutta percha or coated paper. In crowns so made,
like objections are met with. For example, one
difficulty in applying discs made from separate
strips, such as gas and acid resistant material and
the adhesive tissue strips, has arisen from the
necessity for feeding the two strips to the punch-
ing and assembly machine. There is not only dif-
ficulty in feeding the strips, but in cutting the
separate tissue strip with a clean, sharp edge so
as to insure the binding stratum of adhesive being
coextensive in area with the disc of liquid re-
sistant material. As will be understood, the ad-
hesive stratum is intended to act not only as a ce-
ment, but also as a waterproof, non-absorbent,
gas impervious medium for avoiding the possi-
bility of the contents of a bottle getting between
the facing disc and the material of the cap, either
the metal shell itself or a cushion disc of cork
or composition cork.

Furthermore, when using superimposed strips
of the facing material and of adhesive tissue, it
was essential, to bond the adhesive tissue to both
the material of the cushion disc in the cap and
the facing material.

In preparing the rolls of facing material and
adhesive tissue, the practice usually followed was
to form a roll of the tissue in strips of the desired
width, and to unwind this roll and a roll of the
facing material while feeding the two strips one
over the other into the disc forming and assem-
bling machine. This is a troublesome and ex-
pensive operation, because of the frequent break-
age of the adhesive tissue and the necessity
for using fairly heavy tissue to minimize this
tendency. This is due partly to the fact that the
facing material was substantially non-elastic,
while the adhesive tissue possessed a certain de-
gree of elasticity, thus introducing a factor of
difficulty in securing a uniform paying of both
the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing discs of the
character above referred to, that the adhesive
stratum be as thin as possible, and yet be con-
tinuous throughout the entire area of the fac-
ing disc, and particularly that it be uninterr-
rupted about the edge of this disc, since at this
point the disc should be firmly bonded so as to
effectively seal the joint about the edge of the
facing disc. When cutting and applying the
discs of material and adhesive, there is no means
of ascertaining whether the desired conditions
are present in the completed cap. Consequently,
there is always likelihood of imperfectly faced
caps being produced.

With the above conditions in mind, I have pro-
vided material, in strip form, for facing bottle
caps, in which one surface of the strip is pro-
vided with a firmly adherent, continuous thin
facing of adhesive, thus avoiding all necessity
for assembling strips of facing material and of
adhesive tissue preparatory to their use in the
bottle cap facing machine, and all of the disad-
vantages growing out of this practice.

In the strip material of my invention, a very
thin stratum of adhesive is evenly distributed
upon one face of a strip of facing material. The
adhesive is not only firmly bonded to this mate-
rial, but has a smooth surface finish of sufficient
thickness to form the desired firm bond between
a disc cut from the strip and the material of the
cap to which such disc is cemented.

Furthermore, adhesive tissue must be of a
thickness to have sufficient inherent strength
to permit of its being stripped from a roll in a

mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disc applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing discs and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of dammar gum and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The dammar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disc which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly

accomplished at a temperature of about 300° F. maintained for about 3 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface, of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesives from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing discs. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disc, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorbent and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorbent and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawing, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively

uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawing,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Maras, No. 1,893,794, granted Oct. 19, 1932. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as

to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disc it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion ma-

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terial, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with

a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

4. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure.

ALBIN H. WARTH. 110

1934

CONTENTS

Application papers:

1. *Print (sheet) Jan 29, 1934*
2. *Date Report Jan 29, 1934*
3. _____
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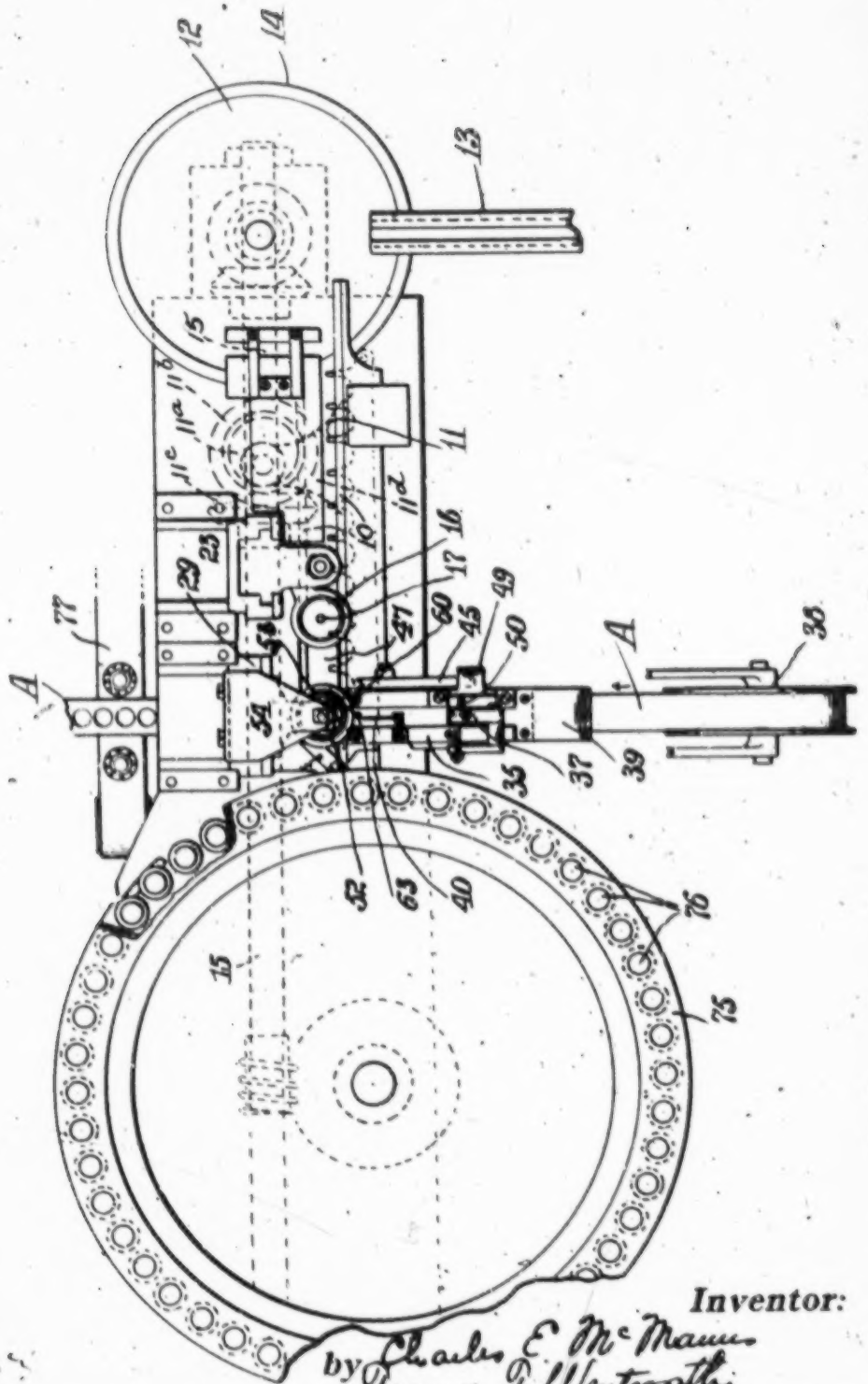
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C. E. McMANUS.
BOTTLE CAP MAKING MACHINE.
APPLICATION FILED APR. 15, 1916.

1,402,780.

Patented Jan. 10, 1922.
4 SHEETS—SHEET 1.

Fig. 1.



Attest:
Edmund K. Jones

Inventor:
by *Charles E. McManus*
Frank J. Wentworth
his Atty.

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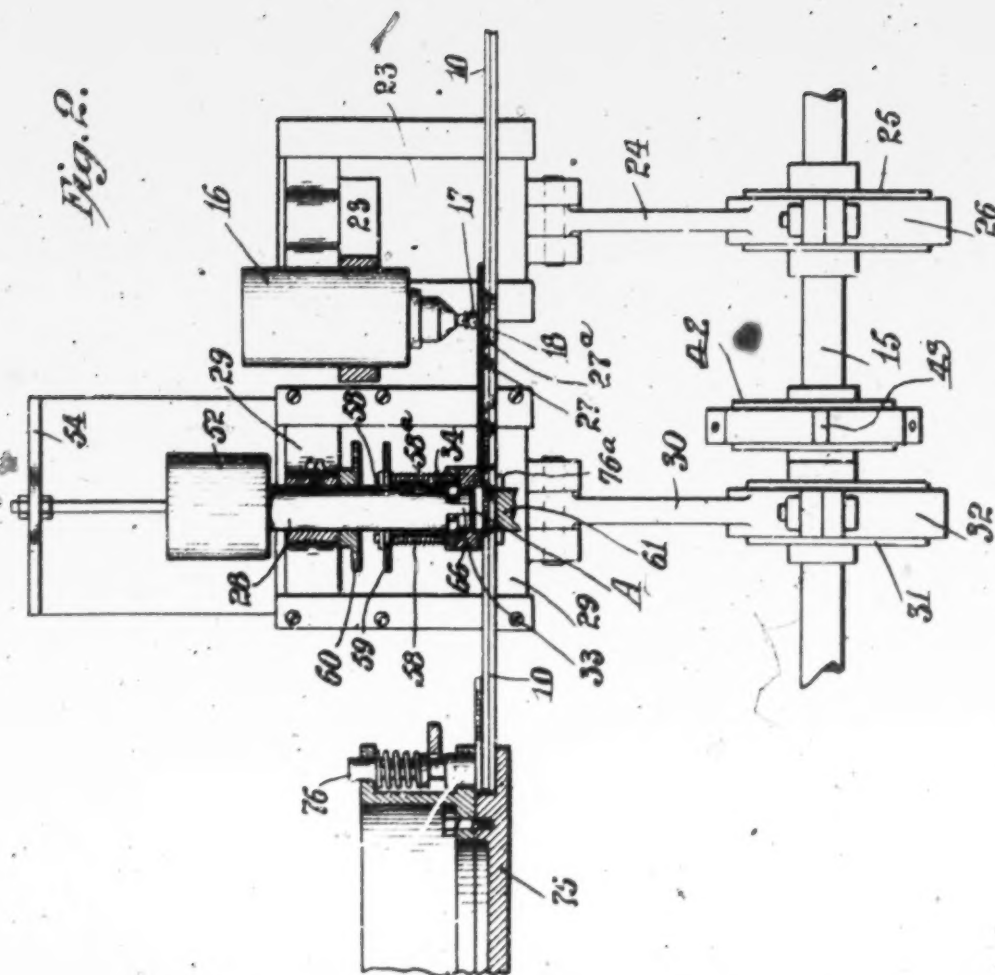
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C. E. McMANUS.
BOTTLE CAP MAKING MACHINE.
APPLICATION FILED APR. 15, 1916.

1,402,780.

Patented Jan. 10, 1922.
4 SHEETS—SHEET 2.



Attest:

B. Mitchell

Charles E. McNamee Inventor:
by Frank J. Wentworth
his Atty.

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C. E. McMANUS.
BOTTLE CAP MAKING MACHINE.
APPLICATION FILED APR. 15, 1916.

1,402,780.

Patented Jan. 10, 1922.
4 SHEETS—SHEET 3.

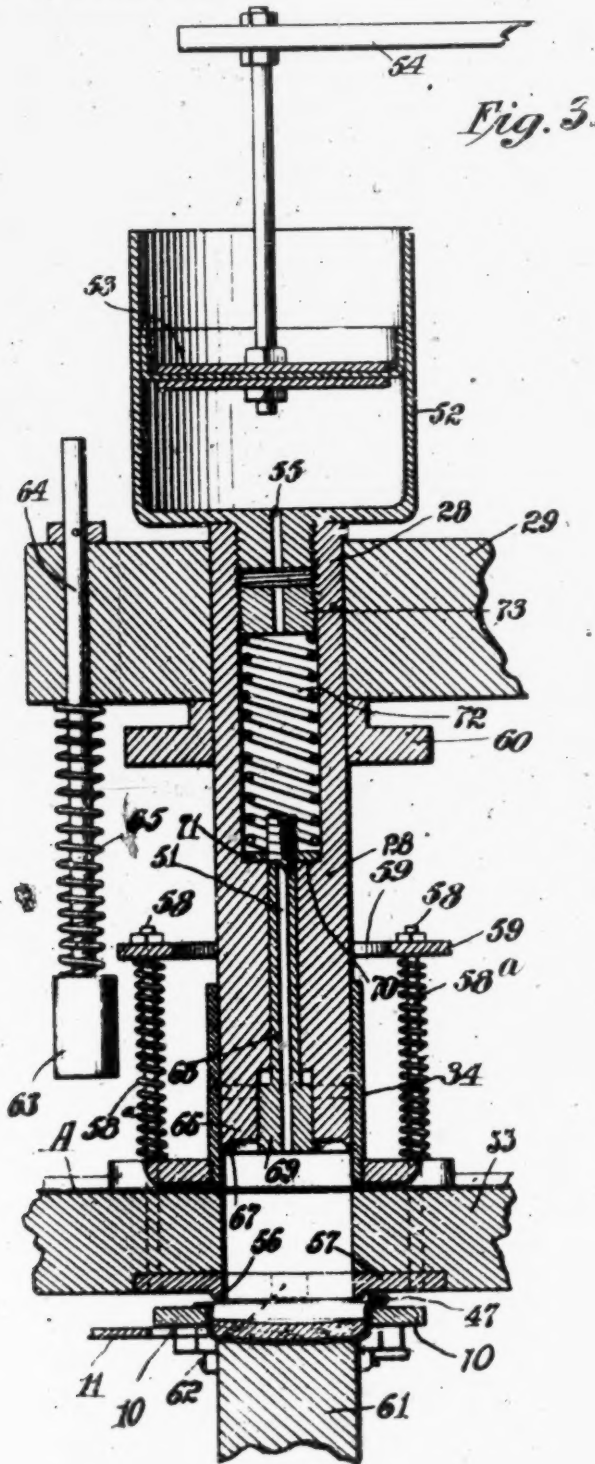
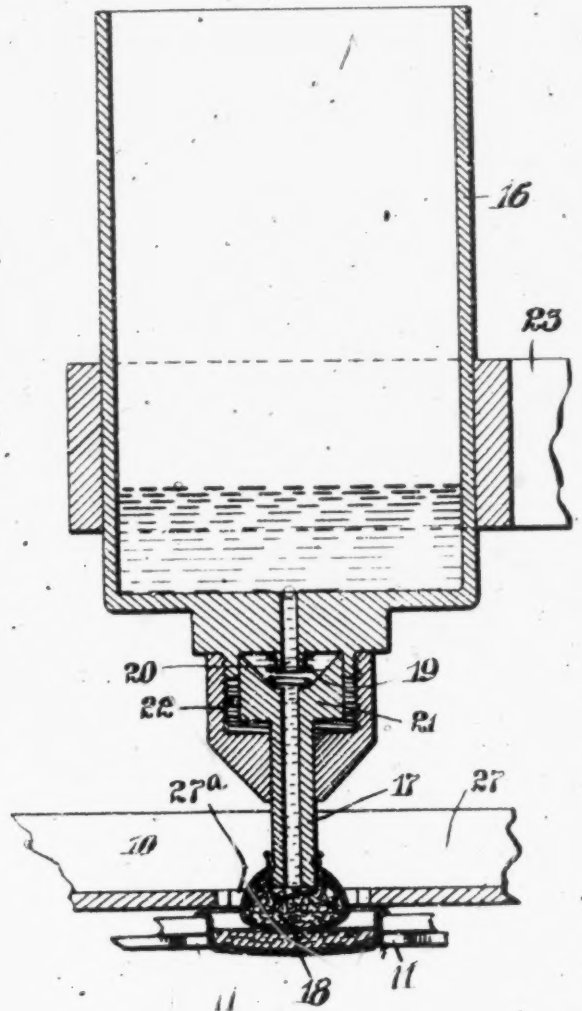


Fig. 4.



Attest:
Wm. J. Adams

Charles E. McManus Inventor:
by *Frank J. Wentworth*
his Atty.

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C. E. McMANUS.
BOTTLE CAP MAKING MACHINE.
APPLICATION FILED APR. 15, 1916.

1,402,780.

Patented Jan. 10, 1922.

4 SHEETS—SHEET 4.

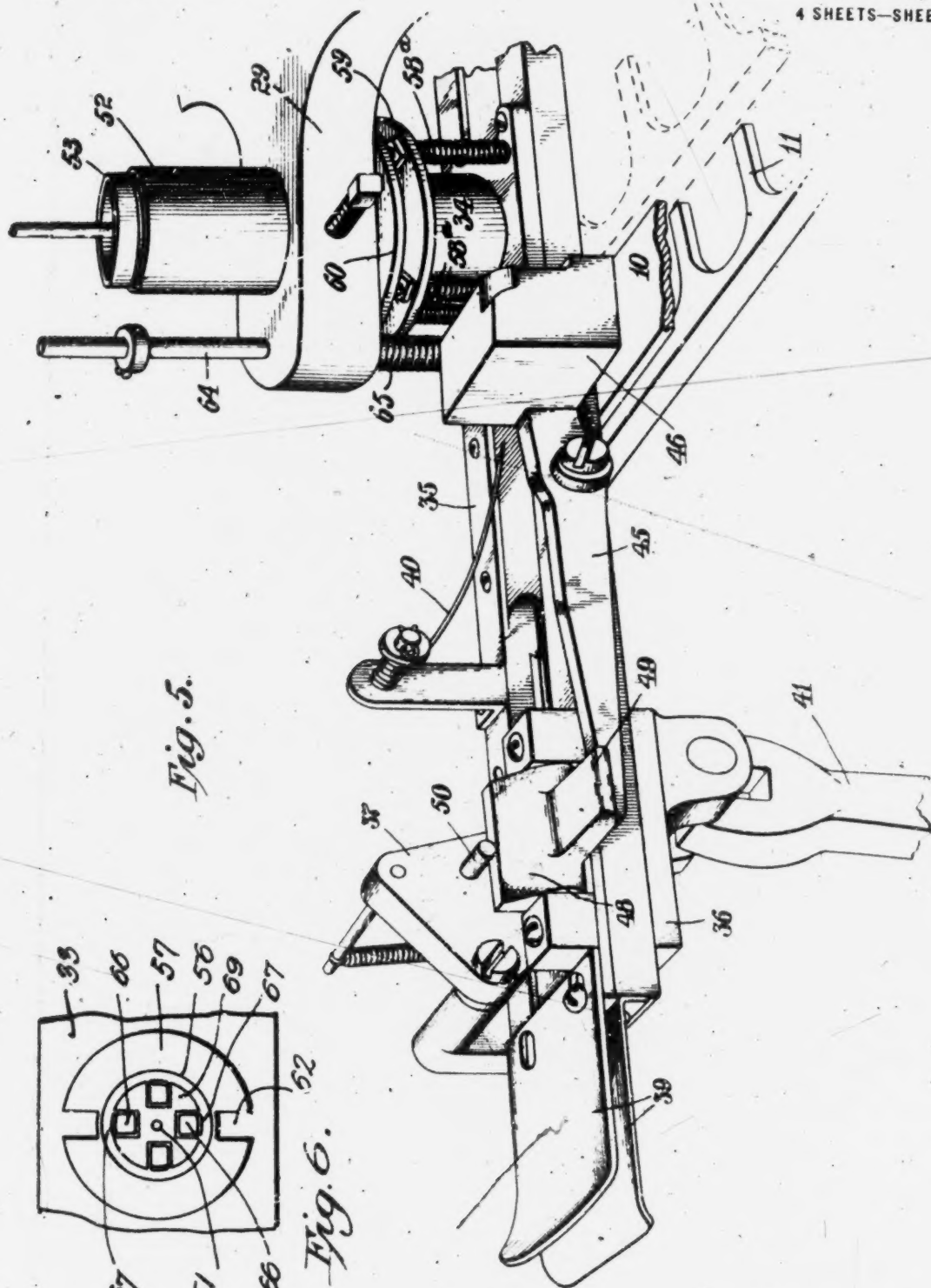


Fig. 5.

Fig. 6.

Attest:
Comitche

Charles E. McManus Inventor:
by *Chas. P. Wootworth*
his Atty.

UNITED STATES PATENT OFFICE.

CHARLES E. McMANUS, OF NEW YORK, N. Y.

BOTTLE-CAP-MAKING MACHINE.

1,402,780.

Specification of Letters Patent.

Patented Jan. 10, 1922.

Application filed April 15, 1916. Serial No. 91,378.

To all whom it may concern:

Be it known that I, CHARLES E. McMANUS, a citizen of the United States, residing at the borough of Manhattan, in the city, county, and State of New York, have invented certain new and useful Improvements in Bottle-Cap-Making Machines, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to bottle cap making machines and more particularly to a machine adapted to apply a protecting disk to the resilient disk for a cap.

It is desirable in producing bottle caps for most uses, to provide the resilient disk formed of cork or other material, with a non-absorbent, gas impervious protecting facing disk so that when a cap is applied to a bottle, this facing extending across the neck of the bottle, will protect the resilient disk from the action of the liquid and gases within the bottle and at the same time prevent the contamination of the contents of the bottle by contact with the material of said resilient disk, or the formation of gas vents through the disintegration thereof. This protecting facing also prevents particles of the material of the resilient disk falling within the bottle.

My invention contemplates a machine for applying protecting facing disks to the resilient disks used in bottle caps, the machine being so constructed as to adapt it to the rapid and automatic application of the facing disks to the resilient disks, in a manner to secure a sufficiently tight bond between the two to ensure that permanency in the relation of parts necessary to a satisfactory sealing of a bottle by the application of the cap thereto.

In a machine made in accordance with my invention, it is necessary to combine in the structure, means whereby a damping fluid may be applied to that area of the surface of the resilient disk to which the facing disk is to be applied; means for pressing the said facing disk into the necessary intimate engagement with the resilient disk to secure the required bond between the facing disk and said resilient disk, the feeding means by which the facing disk is brought into the proper relation to the pressing mechanism, and the resilient disk, and feeding means by

which the succeeding resilient disks are brought rapidly into that position in which the facing disks are applied thereto.

I have found it desirable to limit the application of the damping fluid to an area of the resilient disk, substantially coinciding with the area of the facing disk to prevent discoloration of the resilient disk by the said damping material particularly when the protecting facing disk is of a diameter less than that of the resilient disk. Preferably in caps of this character a facing disk of less diameter than the cork or other disk, is used, since it is desirable to have the neck of the bottle sealed directly against the cork disk or other cushion, to avoid possibility of the formation of gas ducts as a result of a buckling or wrinkling of the material of the protective facing disk. In order to satisfactorily apply this small facing disk to the resilient disk of a bottle cap, I have found it necessary to so construct the machine as to secure substantial exactitude in the centering of the protecting disk with relation to the cork or other resilient disk, and to provide means whereby the facing disk will be applied in a manner to avoid its shifting upon the withdrawal of the presser rod, or subsequently thereto, before the adhesive has had an opportunity to properly set. To secure the desired rapid feeding of the protecting disks, I prefer to cut these disks from a continuous strip or web of previously gummed material, each disk being cut from this strip immediately preceding its application to the resilient disk. The presser mechanism is so constructed as to successively cut a disk from said strip or web, and apply the disk so cut to the resilient disk of a bottle cap by a continuous movement of the presser rod while affording a sufficient dwell, subsequent to the initial application of the disk to the resilient disk, to ensure a sufficiently tight adhesion of the facing disk to the resilient disk to permit withdrawal of the presser rod and the subsequent feeding movement of the resilient disk.

A machine made in accordance with my invention as shown in the drawings also provides means in conjunction with the presser mechanism for centering a bottle cap with relation to the presser bar prior to the application of the facing disk, so as to ensure substantial accuracy in the

centering of the facing disk upon the resilient disk of the cap. I also provide in the machine shown means for holding the severed disk firmly against the presser rod until it has been applied to the resilient disk for the purpose of ensuring a substantially parallel relation between the cut disk, the operative face of the presser bar and the face of the resilient disk to which the disk is to be applied. I also provide in the machine shown, means whereby the feeding mechanism for the paper strip or web will be automatically made inoperative in the event that a resilient disk is not fed in a timely manner with relation to the presser mechanism.

I also provide in the machine, means whereby after the resilient disk with the protecting facing applied thereto, leaves the presser rod, it will be maintained under pressure for a sufficient interval to ensure the requisite setting of the binding agent while the facing disk is held firmly upon the resilient disk.

The invention consists in the novel features of construction and combination of parts hereinafter set forth and described and more particularly pointed out in the claims hereto appended.

Referring to the drawings:—

Fig. 1 is a plan view of a machine embodying my invention;

Fig. 2 is a longitudinal section through the machine;

Fig. 3 is a vertical section through the presser and disk cutting mechanisms;

Fig. 4 is a vertical section through the damping mechanism;

Fig. 5 is a perspective view of the strip feeding, presser and disk cutting mechanisms, and Fig. 6 is a detailed view of the presser bar mechanism, and appurtenant parts.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, I have illustrated my invention in connection with a machine wherein the resilient disk is assembled with the metal cap prior to the application of the protecting facing disk thereto, although the essential features of my invention may be utilized with equal facility to the application of said protecting facing to the resilient disk prior to its assembly with the metal cap. In the following description, I will refer more particularly to the specific embodiment of my invention shown in the drawing, it being understood, however, that this particular mechanism may be modified in those respects necessary to ensure the feeding of a cork or other resilient disk alone, without departing from the spirit and scope of the invention.

In the form of the invention illustrated in the drawings, I have shown at 10 a chan-

neled track or run-way along which the previously assembled caps are intermittently fed in any desired manner, as by means of an ordinary tongue bar 11 receiving a four way movement from any desired source of power. The means for imparting this four way movement to the tongue bar 11 comprises the disc 11^a driven from the shaft 15 by means of the intermeshing gears 11^b and 11^c, and an arm 11^d carried by said bar 11, and pivotally mounted eccentrically of the disc 11^a, all as indicated in dotted lines in Fig. 1 of the drawings. This construction is old and well known in this art and any other desired means of imparting the desired movement to the tongue bar 11 may be used. A suitable mechanism delivers the caps to which the facing is to be applied, to the track or runway 10, this delivery mechanism in the accompanying drawings consisting of a rotating disk 12 upon which the caps are successively delivered from a runway 13 leading from a storage hopper not shown. The rotary movement of the disk 12 will hold the caps against its peripheral rim 14 and cause a circular movement of the caps so as to ensure the timely feeding thereof to the track or runway 10 and within the operative field of the tongue bar 11. Extending longitudinally of the machine, is a power shaft 15 by means of which movement is imparted to the various mechanisms in the machine, thus synchronizing the movement of such mechanisms.

Arranged in operative relation to the said track or runway 10 and the feeding mechanism 11, are a damping mechanism adapted to apply a damping medium adapted to react upon the gum upon the protecting facing disk, and a presser mechanism adapted to force such a disk to place and hold it until the binding material has been sufficiently set to permit the further treatment of the article. These mechanisms are arranged successively and their operations are so timed as to be effective during that interval when the feeding mechanism 11 is inoperative in relation to the caps, or when the cork or other disks are treated before their application to the metal caps, to the disks alone. In the form of the invention shown, I associate with the presser mechanism a strip or web feeding mechanism and a cutting mechanism, the presser bar of said presser mechanism serving as a punch in cutting disks from said web.

The damping mechanism above referred to in the form of the invention shown comprises a tank 16 having a delivery nozzle 17, the discharge end of which is provided with a distributing pad 18 having the two-fold function of retarding the flow of the damping medium and applying the same over a restricted area in a film sufficiently thin to avoid excess moisture upon the cork or other

resilient disk. This pad offers sufficient resistance to the flow of the damping medium and is of sufficient bulk, to ensure the distribution of the damping medium mainly by capillary attraction. To ensure reliability in the feeding of the damping medium as well as to define the maximum pressure of the pad 18 upon the cork, or other disk, the nozzle 17 is made movable in relation to the tank 16, and is subjected to a thrust toward the track or runway 10 from a coiled spring 19 seated about a reduced discharge nozzle 20 upon the tank 16 and acting against a cup-like head 21 carried by the nozzle 17. This head 21 is slidably mounted within an annular ring 22 carried by the tank 16, thus forming a substantially water-tight joint about the top of the said head. By this construction the ordinary feeding of the damping fluid or medium will be through capillary attraction but upon the reciprocation of the nozzle 17 subsequent to its contact with the cork or other disk, there will be a forced feed due to the conditions between the cup 21 and the bottom of the tank 16. This forced feed will have the effect of causing a slightly greater quantity of the damping fluid to be delivered to the disk directly below the outlet of the nozzle 17 than about the edge thereof and will also have the effect of ensuring the constant presence of sufficient damping medium in the pad 18 to permit the operation of the machine at the desired speed.

In the form of the invention shown in the drawings, the tank 16 and all of its appurtenances are mounted upon a reciprocatory slide 23 mounted in suitable ways upon the frame of the machine, and actuated by means of the connecting rod 24, the eccentric 25 and the strap 26. To avoid possibility of the displacement of the cork or other disk or of the metal cap carrying the same upon the withdrawal of the pad 18, I provide in the form of the invention shown, a guard plate 27 having an opening 27^a therethrough, above the track or runway 10 through which opening the pad 18 passes.

Beyond the tank 16 and alined longitudinally of the track or runway 10 with the pad 18 is a reciprocatory presser rod 28 adapted to force the facing disk into engagement with that portion of the resilient disk of a bottle cap which has been previously moistened by means of said damping pad. The said rod 28 is spaced from the damping pad 18 sufficiently to permit the conditioning of the dampened portion of the surface of the resilient disk so as to receive the said facing disk. The rod 28 is carried by and reciprocates with, a slide 29 mounted in suitable ways in the frame of the machine, and actuated by a connecting rod 30, eccentric 31 and strap 32.

In the form of the invention shown, the

facing disks are cut from a gummed strip or web A just prior to the application of said disk to the cork or other resilient disk, of the cap. To permit this operation, I mount above the track or runway 10, a female part 33 of a cutting die, a tubular guide 34 being mounted upon said die part and spaced away therefrom, as shown, sufficiently to form a slot through which the gummed strip or web passes. The presser rod or bar 28 is slidably mounted in said guide 34, the bore of said guide being alined with the die opening in a manner to secure the desired shearing effect upon the strip or web with the depression of said presser bar. The lower end of the bar 28 is faced off so as to secure the desired sharpness of edge.

Extending laterally of the machine adjacent the parts 33 and 34 and alined with the top of the die part 33 is a track 35 in which is slidably mounted a carriage 36 carrying a spring pressed gripper member 37 by means of which the strip or web may be intermittently fed in relation to the disk applying mechanism, the strip A being supported upon a suitable reel 38. The track 35 is provided with suitably flared-plates 39 to guide the web in relation to the gripper mechanism. I also provide a check spring 40 for preventing a return movement of the strip or web with the said gripper mechanism. The reciprocatory gripper 37 is actuated by means of a lever 41 actuated from an eccentric 42 and strap 43 carried by the shaft 15.

To prevent the feeding of the strip or web, except when a cork or other resilient disk is in a position to have a facing disk applied thereto, I mount upon the track 35 a lever 45 one end of which is provided with a weight 46 having a finger 47 adapted to bear upon the edge of the cap, or of the resilient disk, as the case may be. Pivottally mounted upon the tracks 35 adjacent the carriage 36 is an elongated block 48 having a weighted extension 49 adapted to be engaged by the end of said lever 45. The said block 48 co-operates with a bearing pin 50 upon the gripper member 37, so that when the weight 46 is raised by the engagement of the finger 47 thereon with a cap or resilient disk, the block 48 will drop away from the pin so as to permit the gripper 37 to operatively engage the strip or web; but in the event that the weight 46 is permitted to drop, said block 48 will be projected within the path of said pin 50 and thus prevent the operative engagement of said gripper member and the feeding of the web when no resilient disk is in position with relation to the presser mechanism. The specific strip or web feeding mechanism above described is not material to my invention, and other means for intermittently feeding the strip or web and preventing feeding movement thereof when no resilient disk is in position to have the facing disk applied

thereto, may be substituted therefor without departing from the spirit and scope of the invention.

The presser bar or rod 28 has extending longitudinally therethrough, a small duct 51 by means of which a suction may be applied to the paper web while the disk is being cut therefrom and to the disk after it has been so cut, so as to prevent such a displacement of the disk as will prevent its being applied perfectly flat to the cork or other resilient disk. Surmounting the rod or bar 28 is a cup 52 operating within which is a pump plunger 53 which is supported in a fixed relation in the frame of the machine by a bracket 54. The cup 52 being mounted upon and movable with the rod or bar 28 and connected with the interior thereof through the short duct 55, it will be observed that with the downward movement of said bar there will be a substantial reduction of the pressure in the cup 52 and duct 51 and that with the reversal of this movement, there will be a corresponding increase of pressure thus tending to avoid displacement of the disk upon the return movement of the rod or bar 28. In the form of the invention shown, the plunger 53 is so set with relation to the cup 52 that at the end of the stroke of the rod or bar 28, said plunger will pass from said cup and thus admit air thereto. The cup 52 may be so proportioned, if desired, as to admit air thereto substantially simultaneously with the application of the facing disk to the cork, or other resilient disk, so as to increase the effective pressure upon the return stroke thereof.

After the tongue bar 11 has fed a disk below the die part 33, it is essential to secure substantial accuracy in the centering of the cap, or the cork or other disk, with relation to the opening in said die member in order to have the disk applied to the area of said cork, or other disk, which has been previously dampened by the pad 18. In the form of the invention shown, this means for centering the cork, or other disk, is so constructed as to be applicable to a machine for applying the facing disk after the cork or other disk has been assembled in the metal cap. It comprises an annular wedge 56 carried by a ring 57 mounted in the lower face of the die part 33. Carried by said rim 57 are a plurality of rods 58, a head ring 59 being provided for all of said rods 58. Mounted upon the rod or bar 28 is a collar 60 adapted to engage the end of the several rods 58 and impart a reciprocatory movement to the wedge 56 just prior to the application of the facing disk to the cork or other disk. By this construction, clearance beneath the ring 56 for the feeding of successive caps is provided and the ring 57, rod or bar 28 and the facing disk can all thereby will have simultaneous movement

so as to avoid likelihood of the displacement of said disk just prior to its application to the cork or other resilient disk. The springs 58^a will have the function of withdrawing the wedge 56 prior to the succeeding feeding movement of the cap.

When applying the facing disk, it is also necessary to prevent oscillatory movement of the cap upon the anvil 61 positioned below the opening of the die part 33, the surface of the cap engaging said anvil being convex, and it being impossible to provide upon said anvil, supports extending longitudinally of the track or runway 10 for the edges of said cap. To impart the desired stability to the cap, I provide the lower face of the die part 33 outside of the ring 56 with fixed abutments 62 which will engage the top of the out-turned rim of the cap and prevent any oscillatory movement in a direction longitudinally of the track or runway 10. The anvil 61 may be supported from the track 10, or from any other adjacent portion of the machine frame.

To avoid movement of the strip or web A resulting from a drag thereupon while the disk is being cut therefrom, I mount a clamp member 63 upon a rod 64 slidably mounted in the slide 29, a spring 65 being seated between said clamp member and said slide in a manner to give the desired cushioning effect when the clamp member is pressed against the track 45 while developing sufficient pressure to secure the desired operative effect upon the strip or web.

The rod 64 may be adjusted with relation to the slide 29 and the plunger 53 may be adjusted with relation to its supporting bracket 54 to facilitate accuracy in the assembling of the machine or in the adjustment thereof to secure the desired operative conditions.

I have found it preferable to use a facing disk, the diameter of which is substantially less than that of the cork or other resilient disk; since I have found that a better sealing of the neck of the bottle is secured when the top of the bottle seats directly upon the cork or other resilient disk. By better sealing I refer not to greater permanency in any particular case, but to greater uniformity in the effectiveness of the seals in a large number of cases, for, to use the trade expression, the percentage of "leakers" has been materially reduced where this type of facing has been used. With the smaller facing disk, however, I have encountered difficulties in the mechanism for applying these disks, due to the necessity for having the disk positioned with sufficient accuracy in relation to the setting of the cork or other disk to avoid possibility of a portion of the facing disk engaging the top of the bottle in a manner to form a leak about the edge of the disk. I have found in applying these smaller disks that there is a tendency for the facing disk

to shift slightly upon the cork, or other, disk before the binding material has been properly set and this difficulty has necessitated the incorporation in a machine made in accordance with my invention and adapted especially to apply these smaller disks, of means for preventing such movement of the facing disk.

In the form of the invention shown, I prevent this shifting by forcing small portions of the facing disk, at the edge thereof, into the body of the cork, or other disk, sufficiently to prevent movement of the disk in relation to the cork, without, however, cutting or mutilating the cork or other disk in any way. I also provide means whereby while the facing disk is held in position, by being forced into the body of the cork slightly, it will be subjected to a continuing pressure sufficient to permit the binding medium to set enough to permit the withdrawal of the presser rod or bar and the subsequent application to the facing disk of further pressure for insuring permanency in the bond between the two disks.

To accomplish the results above referred to, I provide the lower end of the rod or bar 28 with a plurality of divergently arranged arms 66 each having at the outer lower edge thereof an edged prong 67 coinciding with the outer surface of the said plunger. The bar 28 is hollow from end to end and slidably mounted therein is a stem 68 through which the duct or opening 51 passes. The lower end of this stem carries a platen head 69 the edge of which is provided with a plurality of slots to accommodate the arms 66. The rod or bar 28 is provided with a stop shoulder 70 co-operating with a flanged head 71 upon the inner end of the stem 68 in a manner to limit the outward movement of the platen head 69 under the control of the spring 72 seated within the upper portion of the rod or bar 28 and acting against a plug 73 within said rod or bar. To permit the setting of the platen head with relation to the arm 66, the flanged head 71 is adjustably mounted upon the stem 68 and the plug 73 is adjustably mounted in the rod or arm 28 so that the pressure exerted upon the said platen upon the facing disk may be regulated. The plug 73 has an opening longitudinally therethrough of substantially the same diameter as the duct 51 so as to permit the application of the required suction to the center of the platen head 69. When the device is assembled, the head 69 will be spaced away from the portion of the rod or bar 28 between the arms 66 sufficiently to permit the required movement of the said head.

From the foregoing it will be observed that in a machine made in accordance with my invention as shown in the accompanying drawings, the reciprocatory presser bar

embodies therein a yieldable platen adapted to exert a continuing pressure upon the facing disk, and prongs fixed in relation to the presser bar adapted to engage the edge of the facing disk while pressure is being applied thereto, said prongs upon the reversal of the movement of the pressure rod or bar being disengaged from the said facing disk while the platen is still in engagement therewith.

I have found the above characteristics to be important where a facing disk of a diameter less than that of the cork or other resilient disk, is used and where it is necessary to apply the facing disk to the cork or other disk while the gum thereon is drying; since a certain dwell is essential in order to permit the damping medium to act upon this gum in a manner to make the gum adhesive and permit it to set sufficiently to hold the facing disk with the necessary permanency to permit subsequent treatment of the faced disk.

Receiving the caps from the track or runway 10 is a rotary table 75 having adjacent the edge thereof a sequence of spring clamps 76 adapted to be controlled by a cam 76^a so that as each cap containing the facing disk is delivered to said table, it will be received by one of said clamps and be subjected to a continuing pressure therefrom during the greater portion of one rotation of said table. This table is substantially like that used in the ordinary assembling machine for bottle caps and a detailed description thereof is therefore unnecessary. The sole function of the spring clamps upon said table, in connection with the machine made in accordance with my invention, is to insure a sufficient dwell after the application of the facing disk to the cork or other disk, to permit the setting of the adhesive or binding medium prior to the delivery of the finished article. This binding medium will set readily at normal temperatures, although if desired heat at a low temperature may be applied to the table to expedite the evaporation of the damping medium. I have, however, found it desirable to have said binding medium set under pressure in order to secure the desired intimacy of the bond and to cause the facing strip to be perfectly flat.

In connection with the table 75 I provide an ordinary collecting belt 77 for the purpose of facilitating the inspection of the finished article.

The waste of the strip or web A is merely allowed to run from the machine and may be collected in any desired receptacle.

The strip A may be made of any desired material, one side thereof being water proof, gas impervious and acid resisting, while the other side thereof is provided with a gummed surface. The strip must be thin to avoid its projecting from the cork or other resili-

ent disk and interfering with the sealing of the bottle, and sufficiently pliable or flexible to permit it to yield readily with the cork or other disk. If the material of the disk does not possess inherent properties to make it non-absorbent, gas-impervious and acid resisting, it may be treated in any desired manner to impart to its these properties. It will be readily observed that the strip or web A must be dry when the disks are cut therefrom, since the application of a wet adhesive to the surface thereof prior to the cutting of the disks therefrom would not only interfere with the shearing action but would foul the cutting mechanism so rapidly as to make the machine impracticable.

The operation of the herein described machine is substantially as follows.

A machine made in accordance with my invention is designed merely to place a protecting facing disk upon a cork or other resilient disk, entering into the structure of a closure cap for bottles and is not adapted to assemble the cork or other disk with the metal part of the cap, whether the facing disk be applied to the cork or other disk before or after it has been assembled in the completed article. The machine of my invention might be associated with an assembling machine so as to produce a cap having a protecting facing but the variance in time required to assemble the cap, and to apply the protecting facing thereto is such as to ordinarily make it desirable to operate these two types of machine entirely independently of each other.

In the form of the invention shown the protecting facing disk is applied after the cork or other resilient disk has been assembled with the metal part of the cap, and the details of the machine are so constructed as to adapt the machine to the handling of the assembled caps.

The caps to be faced are successively delivered at the desired rapidity by the delivery mechanism to the intermittently operative feeding mechanism 11, by which they advance with a step by step movement toward the damping and the presser mechanism. During the dwell of the caps between their feeding movements, the tank 16 and the rod or bar 28 are simultaneously forced downwardly into the operative relation with certain of the caps, this movement applying the facing disk to one cap, and damping the cork or other resilient disk, of a succeeding cap so as to condition it to receive the facing disk upon a subsequent operation of the machine. Since the several operations of the dampening of the cork or other resilient disk, the strip from which the facing disks are cut, and cutting and applying the disk are substantially simultaneous, I will, to avoid confusion in the description, describe each operation separately.

As to the damping mechanism, since the pad 18 retards the flow of the damping medium, it is necessary to secure the desired damping effect upon the cork or other disk by applying said pad 18 to the disk with sufficient pressure to force the damping medium in the desired volume through said pad. As the tank 16 and its appurtenances descend, the pad 18 will contact with the cork or other disk, and with a subsequent and continuing movement of the said tank, the spring 19 will yield under the pressure sufficiently to permit the head 21 to move toward the bottom of the tank and thus tend to force the damping medium contained in said head and in the opening through the nozzle 17, into and through the pad 18 in a manner to deposit a thin film of the medium upon the surface of the cork or other disk. With the reversal of the movement of the said tank, however, the pad will remain in contact with the cork or other disk and as the tank recedes the head 21 will have the two-fold effect of instantly retarding the flow of the damping medium toward the pad, and of drawing a fresh supply of the said medium within the head 19 from the tank 16. The forced feed of the damping medium after the application of the pad 18 to the cork or other disk, will cause the greatest volume of the damping medium to be adjacent the center of the pad 18 and the dwell of this pad during the first part of the return movement of the tank, will have the effect of equalizing the quantity of the damping fluid throughout the entire area to which it is applied, and limiting this quantity to a thin film.

The damping medium used may vary as to its composition according to the composition of the gum used upon the strip or web A from which the facing disks are cut, or if composition disks are used instead of cut cork disks, with the character of the binder as well as the gum, so as to ensure any desired chemical reaction which will facilitate the quick adhesion of the facing disk to the cork or other disk and permanency of the bond between the two.

While a short track or runway 10 may be employed, I preferably space the damping mechanism sufficiently in advance of the presser mechanism to ensure the portion of the cork or other disk having the damping medium thereon being in a condition to receive the previously gummed facing disk as it approaches the presser mechanism.

As each cap is fed in relation to the damping mechanism, it passes under the guard plate 27 and is held thereby in a fixed relation to the pad 18.

After leaving the damping mechanism, the caps are successively fed in relation to the presser mechanism, being brought to rest below the opening in the die part 33, and

upon the anvil 61. As each cap approaches the die, the ring 56 is in its upward position so as to leave the proper clearance, and the upper rim of the metal part of the cap engages the projections 62 at diametrically opposite points thereof in the direction of the longitudinal movement of the cap, thus holding the cap firmly in place.

As each cap comes to place the carriage 36 is reciprocated, the gripper 37 thereon engaging the strip or web A which has the gummed surface thereof presented downwardly towards the said die part 33, and feeds said strip or web to an extent required to cut one disk therefrom. Upon the reversal of the movement of the carriage 36, the check spring 40 will prevent a return movement of the strip or web. In the event that at any time a cap is not fed beneath the said die part, the tongue 46 upon the weight 47 will meet no resistance, thus causing said weight to rock the lever 45 and force the block 48 into operative engagement with the pin 50 upon the gripper 37 in a manner to prevent said gripper feeding the strip or web.

During the first stages of the descent of the rod or bar the platen 69 and the arms 66 will act as a punch co-operating with the die part 33 to cut a disk from the strip or webs A. With the downward movement of said rod or bar the cup 52 will be moved in relation to the plunger 53 in a manner to develop a suction through the duct 51 upon the strip, thus holding the cut disk flat against the face of the said rod or bar; and this suction will continue during the entire downward stroke of the said rod or bar.

With a continued downward movement of the rod or bar 28, the collar 60 will engage the ends of the spring pressed rods 58 and force the ring 57 downwardly forcing the wedge 56 within the metal portion of the cap, which will center the cap with relation to the rod or bar 28 and will remain in this position until the facing disk has been applied to the cork or other disk, and prevent movement of the cap in relation to the rod or bar during this interval.

As the rod or bar 28 approaches the limit of its downward stroke, the platen 69 will force the facing disk, under a yielding pressure, upon the previously dampened portion of the cork or other disk, thus compensating for any variance in the thickness of the cork or other disk, limiting the pressure applied thereto, and permitting a dwell of the disk under pressure sufficient to ensure a temporary bond between the facing disk and the cork or other disk. As the platen 69 recedes against the tension of its spring 72, the prongs 67 will force divergent portions of the edge of the facing disk into the material of the cork, or other, disk in a manner to secure a firm bond at those points and thus

not only ensure accuracy in the centering of the facing disk, but sufficient permanency in the bond to avoid slippage of the facing disk in relation to the cork or other disk. With the reversal of the movement of the rod or bar 28, the prongs 67 will be disengaged or withdrawn from the material of the cork, or other, disk while the platen 69 continues to apply pressure to the facing disk in a manner to prevent any possible displacement thereof. With this upward movement, the pressure in the cup 52 will be raised above atmosphere in a manner to serve somewhat as an injector for ensuring a clean separation of the platen 69 from the facing disk. It is apparent that by adjustment of the plug 73 the pressure exerted by the platen 69 may be regulated. The shoulder 70 and the plunger head 71 upon the stem 68 limit the outward position of the platen 69 and by adjusting said plunger head 71, the relative position of the platen 69 and the arms 66 may be regulated.

As the rod or bar 28 moves upwardly, the ring 60 will be disengaged from the spring pressed rods 58 permitting the ring 57 to recede within the lower face of the die part 33 and afford clearance for the subsequent feeding movement of the caps.

As the slide 29 descends, the clamp 63 will yieldingly engage the strip or web A in a manner to check any tendency of the strip to drag while the facing disk is being cut therefrom.

After leaving the presser mechanism, the cap is delivered to one of the spring clamps 76 carried by the table 75, which clamp will close upon the cap in a manner to apply a continuing pressure thereupon until the table 75 has turned to a point where the cap will be discharged upon the collecting belt 77. The table 75 need not be subjected to heat to secure the desired bond between the facing disk and the cork or other disk, it being merely required that the facing disk be subjected to a continuing pressure after its application to the cork or other disk, to secure the desired permanency of the bond between the two disks. If desired heat at a low temperature may be applied to the said table, solely for the purpose of drying out the damping medium, however.

The operations above described are either simultaneous or in such rapid sequence, as to be practically simultaneous, as the machine is operated at a fairly high speed. The feeding movement is alternated with the operations incidental to the application of the facing disk to the cork or other disk.

It is not my intention to limit the invention to the details of construction shown in the drawings or to the particular mechanical movements by which the dampening and presser mechanism are actuated. The machine shown in the drawings is adapted to

handle previously assembled caps, but it is apparent that to adapt the machine to handling the cork or other disks, before assembling them with the metal portion of the cap, would require merely the modification of the feeding and holding mechanisms for the disks and would not involve any substantial variance in the functions of the machine.

10 Having described the invention, what I claim as new and desire to have protected by Letters Patent is:—

1. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a portion of the area of a resilient disk for a bottle cap, and means for applying previously gummed facing material to the portion of the disk to which said damping medium is applied.

20 2. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a portion of the area of a resilient disk for a bottle cap, means for cutting a disk of facing material from a previously gummed strip, and applying said disk to the dampened portion of said other disk, and feeding means for said strip.

3. A machine for making bottle caps embodying therein means for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for cutting a facing disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip and for applying said facing disk to said resilient disk, and feeding means for said strip.

4. A machine for making bottle caps embodying therein means for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for cutting a facing disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip, said means embodying therein a platen adapted to press said facing disk into engagement with the resilient disk and means adapted to press portions of the edge of said facing disk into the body of said resilient disk whereby displacement of said platen therefrom is prevented and feeding means for said strip.

5. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for applying previously gummed facing material to the portion of the disk to which said damping medium is applied, and means subjecting said facing disk to a continuing pressure after it has been applied to said resilient disk.

6. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a

bottle cap, means for cutting a disk of facing material from a previously gummed strip, and applying said disk to the dampened portion of said resilient disk, feeding means for said strip or web and means subjecting said facing disk to a continuing pressure after it has been applied to said resilient disk.

7. A machine for making bottle caps embodying therein means for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for cutting a facing disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip and for applying said facing disk to said resilient disk, feeding means for said strip, and means subjecting said facing disk to a continuing pressure after it has been applied to said resilient disk.

8. A machine for making bottle caps embodying therein means for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for cutting a facing disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip, said means embodying therein a platen adapted to press said facing disk into engagement with the resilient disk and means adapted to press portions of the edge of said facing disk into the body of said resilient disk whereby displacement of said facing disk upon the withdrawal of said platen therefrom is prevented, feeding means for said strip, and means subjecting said facing disk to a continuing pressure after it has been applied to said resilient disk.

9. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for applying previously gummed facing material to the portion of the disk to which said damping medium is applied and means whereby air under pressure is applied to said facing disk as said last named means recedes therefrom.

10. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for cutting a disk of facing material from a previously gummed strip and applying said disk to the dampened portion of said resilient disk, means whereby a continuing suction is applied to said facing disk after it is cut from said strip and until it is applied to the resilient disk, and feeding means for said strip.

11. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, means for cutting a disk of facing material from a previously gummed

strip, and applying said disk to the dampened portion of said resilient disk, an air pump co-operating with said last named means whereby the facing disk will be held by suction in a fixed relation to said means until it has been applied to said resilient disk and air under pressure will be applied to said facing disk as said last named means recedes, and feeding means for said strip.

12. A machine for making bottle caps embodying therein a reciprocatory damping mechanism adapted to apply a damping medium to the surface of the resilient disk for a bottle cap, a reciprocatory presser mechanism, means whereby previously gummed facing material is fed in relation to said presser mechanism, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

13. A machine for making bottle caps embodying therein a reciprocatory damping mechanism adapted to apply a damping medium to the surface of a resilient disk for a bottle cap, a reciprocatory presser mechanism, means whereby facing material is fed in relation to said presser mechanism, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms, and means whereby said facing material is subjected to a continuing pressure after leaving said presser mechanism.

14. A machine for making bottle caps embodying therein a reciprocatory damping mechanism, a reciprocatory presser mechanism, intermittently operative means simultaneously actuating said damping and said presser mechanisms whereby said damping mechanism will apply a damping medium to the surface of a resilient disk for a bottle cap and said presser mechanism will simultaneously apply previously gummed facing material to a previously dampened resilient disk, means whereby facing material is fed in relation to said presser mechanism and intermittently operative means whereby a sequence of resilient disks are successively brought into operative relation to said damping and said presser mechanisms.

15. A machine for making bottle caps embodying therein a reciprocatory damping mechanism, a reciprocatory presser mechanism, intermittently operative means simultaneously actuating said damping and said presser mechanisms, whereby said damping mechanism will apply a damping medium to the surface of a resilient disk for a bottle cap and said presser mechanism will simultaneously apply facing material to a previously dampened resilient disk, means whereby facing material is fed in relation to said presser mechanism, intermittently operative means whereby a sequence of re-

silient disks are successively brought into operative relation to said damping and said presser mechanisms and means whereby said resilient disks and the facing material thereon are subjected to a continuing pressure after they leave said presser mechanism.

16. A machine for making bottle caps embodying therein a reciprocatory damping mechanism embodying therein a yieldable nozzle adapted to apply a damping medium to the surface of a resilient disk for a bottle cap, means having a normal tendency to thrust said nozzle toward the resilient disk whereby said nozzle remains in engagement with said resilient disk for a sufficient period to ensure uniform application of the damping medium thereto, a reciprocatory presser mechanism, means whereby facing material is fed in relation to said presser mechanism, and means whereby said facing material is subjected to a continuing pressure after leaving said presser mechanism.

17. A machine for making bottle caps embodying therein a reciprocatory damping mechanism embodying therein a yieldable nozzle, an absorbent pad carried by said nozzle, a container for the damping medium, co-operating means carried by said container and said nozzle whereby the damping fluid will be forced into said pad upon the engagement of the pad with a resilient disk, and means having a normal tendency to thrust said nozzle toward said resilient disk whereby said pad remains in engagement with the resilient disk for a sufficient period to ensure uniform application of a damping medium thereto and the flow of the damping medium toward the end of the interval during which said pad is in engagement with said resilient disk will be checked, a reciprocatory presser mechanism, means whereby facing material is fed in relation to said presser mechanism, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

18. A machine for making bottle caps embodying therein a reciprocatory damping mechanism embodying therein a container for the damping medium having a sub-chamber into which said medium flows, from said container through a constricted opening, a nozzle having a cup-like head in said sub-chamber, an absorbent pad carried by the lower end of said nozzle and a spring having a normal tendency to thrust said nozzle away from said container whereby said pad remains in engagement with a resilient disk for a sufficient period to ensure uniform application of a damping medium thereto and the flow of the damping medium toward the end of the interval during which said pad is in engagement with said resilient disk will be checked, a reciprocatory presser mechanism, means whereby facing material

is fed in relation to said presser mechanism, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

19. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby said facing disk is delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

20. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto, embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, a platen and means whereby said prongs may be disengaged from said disks while said platen remains in engagement therewith, means whereby said facing disks are delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

21. A machine for making bottle caps embodying therein a reciprocatory damping mechanism adapted to apply a damping medium to the surface of a resilient disk for a bottle cap, a reciprocatory presser mechanism, means whereby previously gummed facing material is fed in relation to said presser mechanism, means whereby said presser mechanism is held in engagement with said facing material after its application to the resilient disk for an interval to ensure the moistening of the gum on, and the adhesion of, said material to said resilient disk, and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

22. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a re-

silient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto, embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, a platen slidably mounted therein adjacent said prongs a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs and a stop limiting the outward movement of said platen, whereby said platen will force said facing disk into engagement with said resilient disk and subject it to a continuing pressure while said prongs force edge portions of the facing disk into the resilient disk and are withdrawn therefrom, means whereby a facing disk is delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

23. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto, embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, a platen slidably mounted therein adjacent said prongs a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs, a stop limiting the outward movement of said platen, whereby said platen will force said facing disk into engagement with said resilient disk and subject it to a continuing pressure while said prongs force edge portions of the facing disk into the resilient disk and are withdrawn therefrom, and independently operative means whereby said platen may be set relatively to said prongs and the tension of said spring may be regulated, means whereby a facing disk is delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms.

24. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, a presser mechanism for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs

about the edge thereof adapted to force the edge of said facing disk into said resilient disk, a platen slidably mounted therein adjacent said prongs, a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs, a stop limiting the outward movement of said platen whereby said platen will force said facing disk into engagement with said resilient disk and subject it to a continuing pressure while said prongs force edge portions of the facing disk into the resilient disk and are withdrawn therefrom, and means for holding the facing disk against said platen and facilitating the withdrawal of said platen from said facing disk after its application to the resilient disk comprising a cylinder carried by and movable with said presser bar, and a fixed piston co-operating therewith, said presser bar and said platen being provided with a duct opening into said cylinder and outwardly of said platen, means whereby a facing disk is delivered into the operative relation to said presser bar and means whereby the resilient disk is brought successively into the operative relation to said damping mechanism and said presser mechanism.

25. A machine for making bottle caps embodying therein means adapted to apply a damping medium to a resilient disk for a bottle cap, a presser mechanism for applying a previously gummed facing disk thereto and means whereby said resilient disk is centered relatively to said presser mechanism.

26. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby a facing disk is delivered into operative relation to said presser bar, means whereby the resilient disk is brought successively into the operative relation to said damping and said presser mechanisms and means whereby said resilient disk is centered relatively to said presser mechanism.

27. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto, embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means

whereby facing disk is delivered into the operative relation to said presser bar, means whereby said resilient disk is centered relatively to said presser mechanism comprising a reciprocatory wedge encircling said presser bar, springs normally raising said wedge and means carried by said presser bar whereby said wedge will be forced into engagement with the metal portion of a bottle cap having a resilient disk therein prior to the engagement of the facing disk with said resilient disk and means whereby bottle caps having resilient disks therein are brought successively into the operative relation to said presser mechanism and a centering wedge.

28. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby a facing disk is delivered into the operative relation to said presser bar, and means whereby said facing material is subjected to a continuing pressure after leaving said presser mechanism.

29. A machine for making bottle caps embodying therein a reciprocatory damping mechanism adapted to apply a damping medium to the surface of a resilient disk for a bottle cap, a reciprocatory presser mechanism, means whereby previously gummed facing material is fed in relation to said presser mechanism, means whereby said presser mechanism is held in engagement with said facing material after its application to the resilient disk for an interval to ensure the moistening of the gum on, and the adhesion of, said material to said resilient disk, and means whereby said facing material is subjected to a continuing pressure after leaving said presser mechanism.

30. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, means for applying a previously gummed facing disk of substantially the same area as the dampened portion of said resilient disk thereto embodying therein a reciprocatory presser bar having a plurality of prongs about the edge thereof adapted to force the edge of said facing disk into said resilient disk, means whereby a facing disk is delivered into the operative relation to said presser bar, means whereby said resilient disk is centered rel-

atively to said presser mechanism comprising a reciprocatory wedge encircling said presser bar, springs normally raising said wedge, means carried by said presser bar whereby said wedge will be forced into engagement with the metal portion of a bottle cap having a resilient disk therein prior to the engagement of the facing disk with said resilient disk, means whereby bottle caps having the resilient disks therein are brought successively into the operative relation to said presser mechanism and a centering wedge, a support for the bottle cap axially below said presser bar and means adjacent said wedge adapted to engage the rim of said cap whereby movement of said cap is prevented while said facing disk is being delivered thereto.

31. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, a reciprocatory presser bar having a plurality of prongs about the edge thereof, a platen slidably mounted in relation to said bar adjacent said prongs, a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs, a stop limiting the outward movement of said platen, a die part having an opening therein adapted to cooperate with the edge of said platen and said prongs in cutting a disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip whereby a facing disk will be forced by said platen into engagement with said resilient disk and be subjected to a continuing pressure while said prongs force edge portions of said facing disk into the resilient disk and are withdrawn therefrom, means feeding said strip relatively to said die part and said bar, and means whereby

the resilient disk is brought successively into the operative relation to said damping mechanism below said die part.

32. A machine for making bottle caps embodying therein a reciprocatory damping mechanism for applying a damping medium to the central portion of one side of a resilient disk for a bottle cap, a reciprocatory presser bar having a plurality of prongs about the edge thereof, a platen slidably mounted in relation to said bar adjacent said prongs, a spring having a normal tendency to thrust said platen axially of said bar beyond said prongs, a stop limiting the outward movement of said platen, a die part having an opening therein adapted to cooperate with the edge of said platen and said prongs in cutting a disk of substantially the same area as the dampened portion of said resilient disk from a previously gummed strip whereby a facing disk will be forced by said platen into engagement with said resilient disk and be subjected to a continuing pressure while said prongs force edge portions of said facing disk into the resilient disk and are withdrawn therefrom, means feeding said strip relatively to said die part and said bar, means whereby the resilient disk is brought successively into the operative relation to said damping mechanism below said die part, means whereby the feeding of said strip will be prevented in the event of the failure of said last named means to bring a resilient disk into the operative relation to said die part and said bar.

In witness whereof, I hereunto affix my signature in the presence of two subscribing witnesses, this 13th day of April, 1916.

CHARLES E. McMANUS.

Witnesses:

JUDITH CARDEE,
CLARICE FRANCK.

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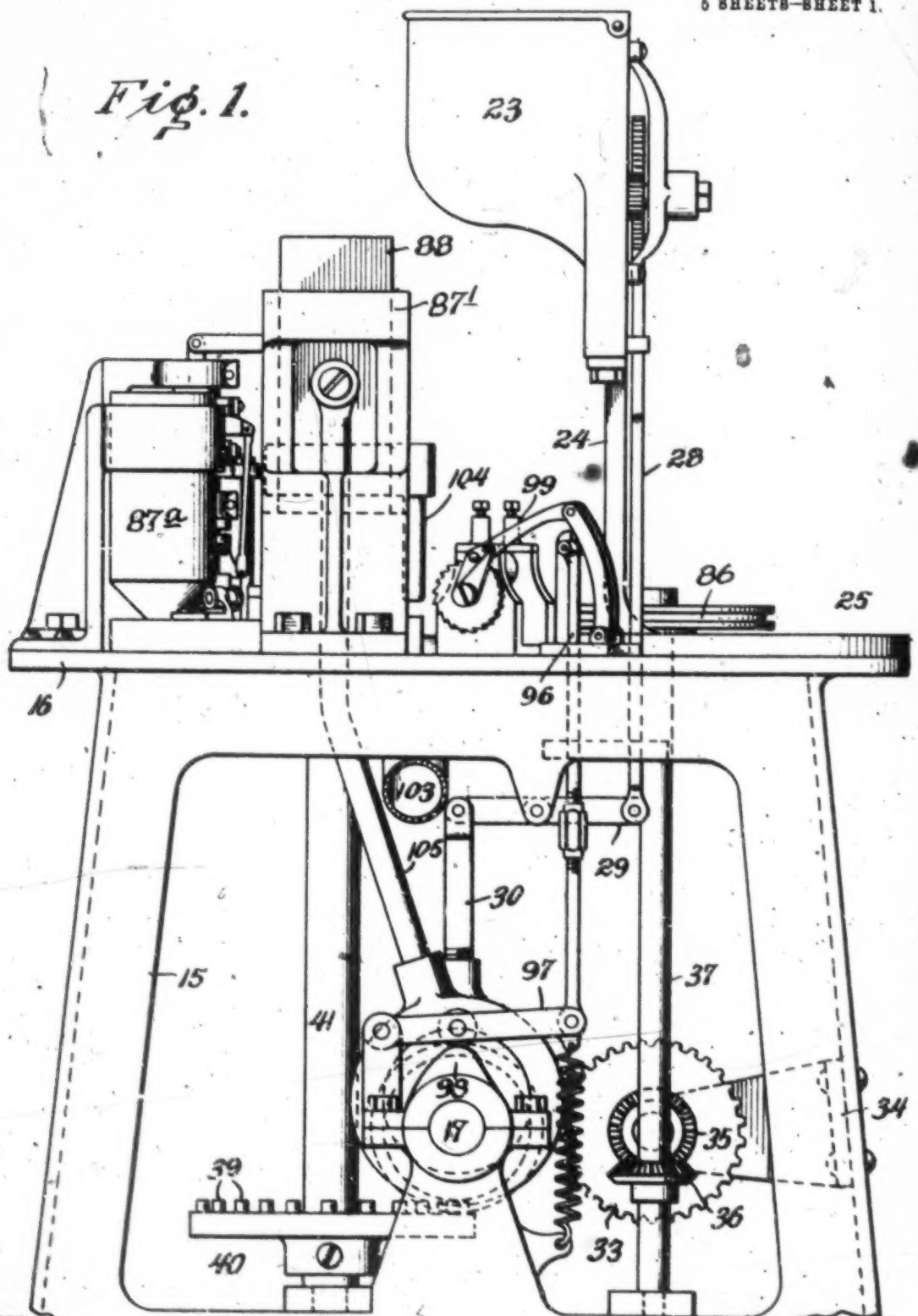
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BOTTLE SEAL ASSEMBLING MACHINE.
APPLICATION FILED APR. 15, 1909.

993,288.

Patented May 23, 1911.

5 SHEETS-SHEET 1.

Fig. 1.



WITNESSES

*Daniel Webster &
P. Bonroy*

INVENTOR

Leonard Bartlett.

BY

Harry P. Van Wyke
ATTORNEY

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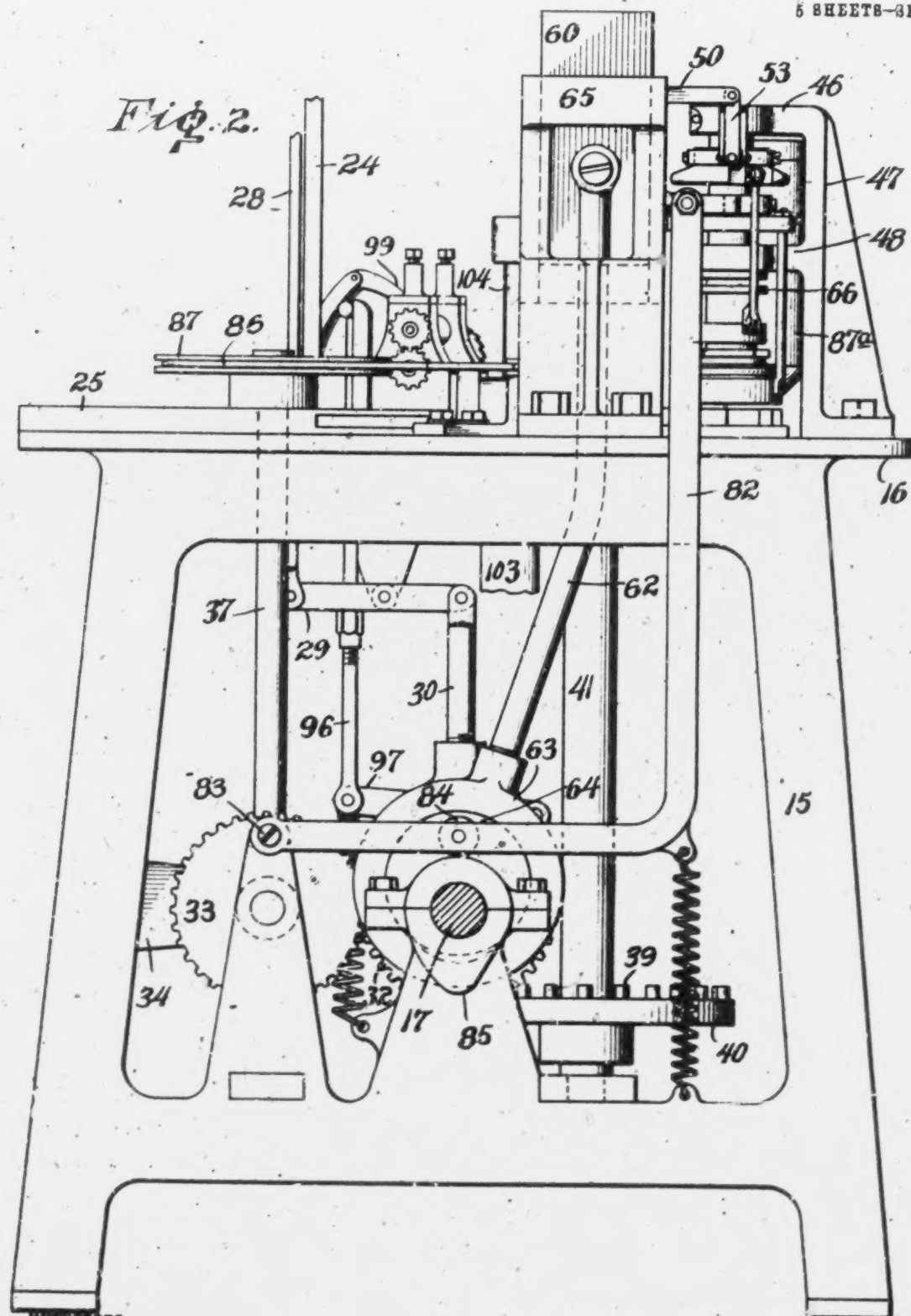
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Patented May 23, 1911.
5 SHEETS-SHEET 2.



WITNESSES

Daniel Webster, Jr.
P. Bonroy.

BY

INVENTOR
Leonard Bartlett.

Garry P. Van Wye
ATTORNEY

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BOTTLE SEAL ASSEMBLING MACHINE.
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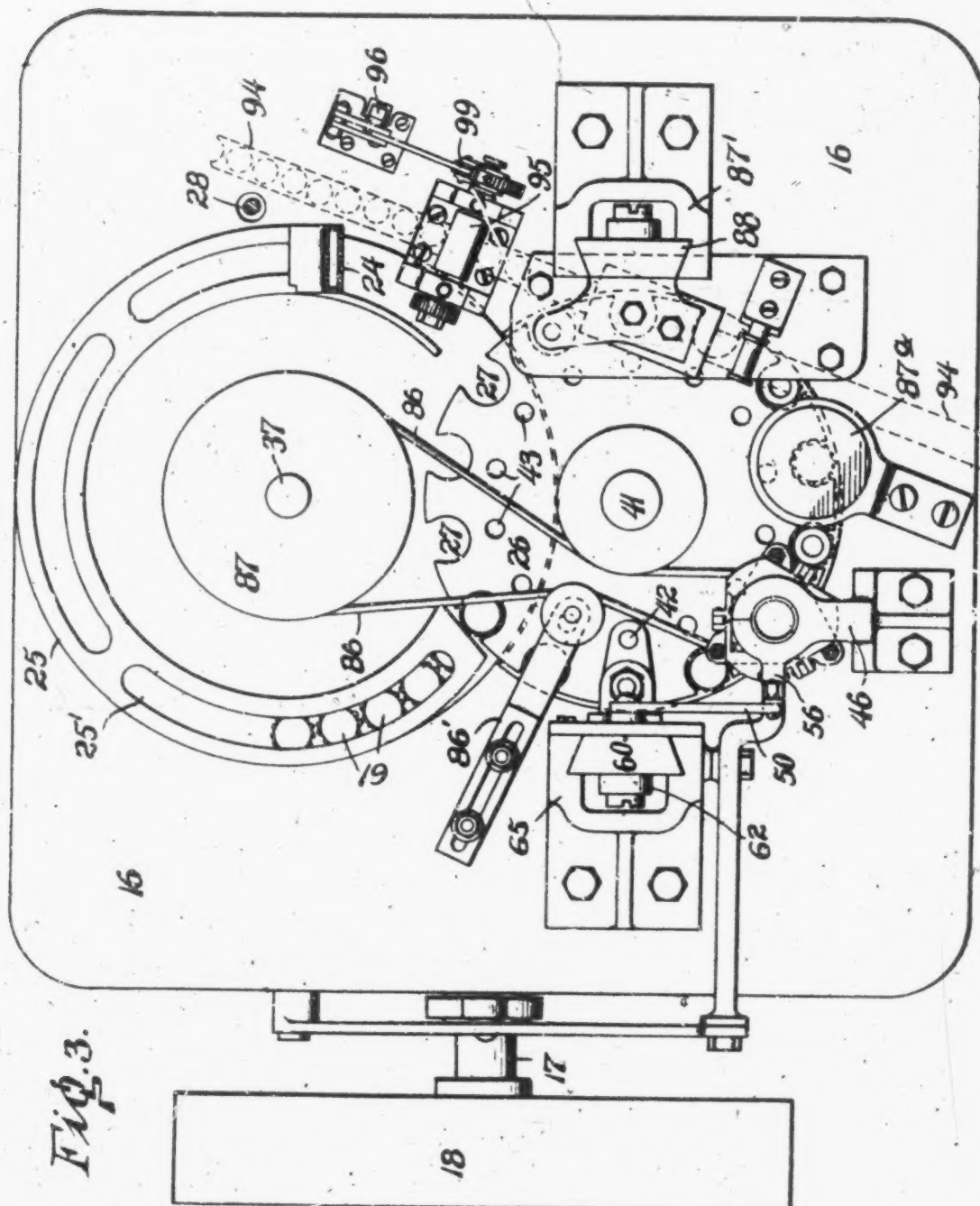


Fig. 3.

WITNESSES

Daniel Webster &
P. Bonroy

INVENTOR

Leonard Bartlett.

BY

Garry P. Van Wye
ATTORNEY

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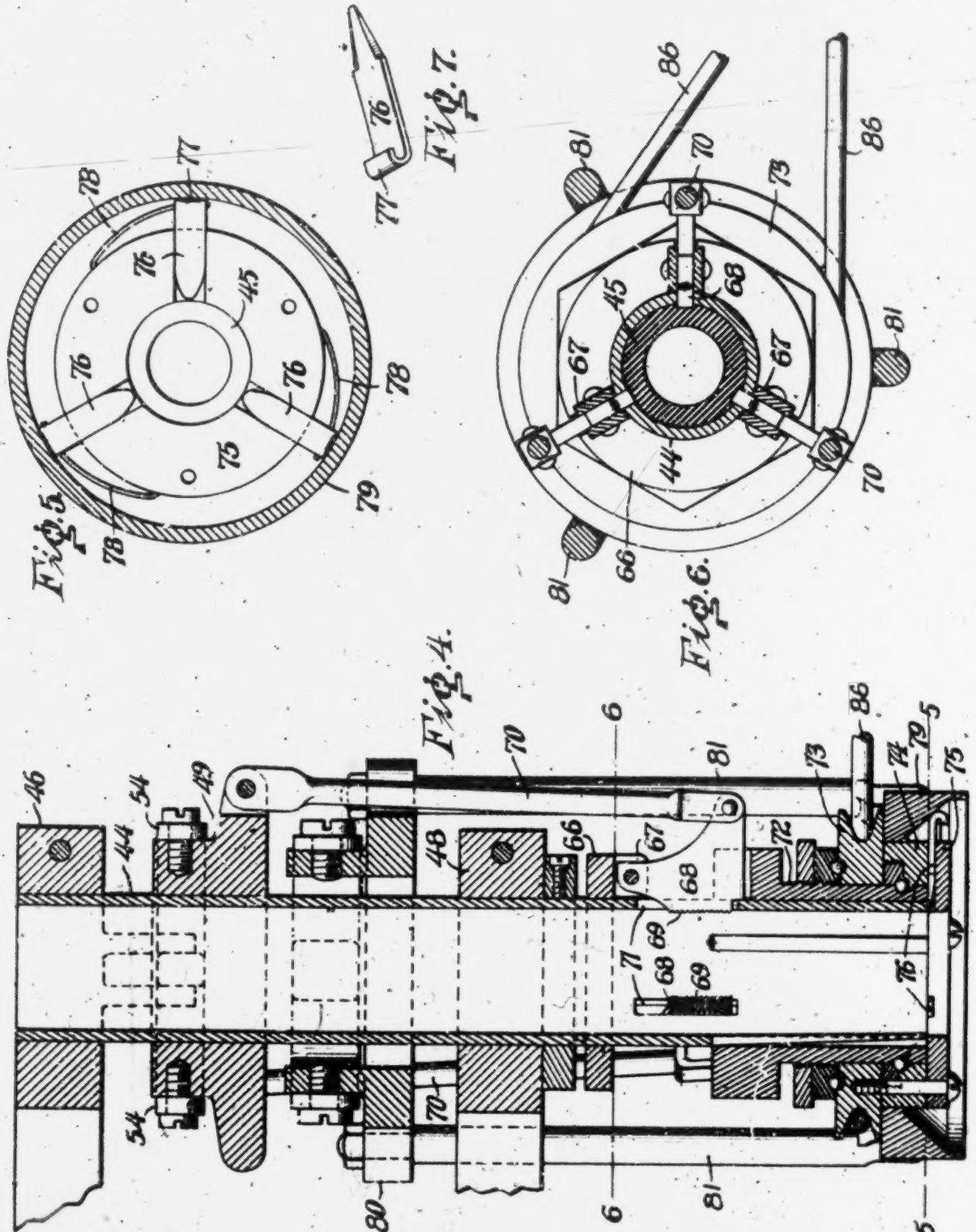
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APPLICATION FILED APR. 15, 1909.

993,288.

Patented May 23, 1911.

6 SHEETS-SHEET 4.



WITNESSES

Daniel Webster, Jr.
Patron

BY

INVENTOR

Leonard Bartlett

Garry P. Van Wye
ATTORNEY

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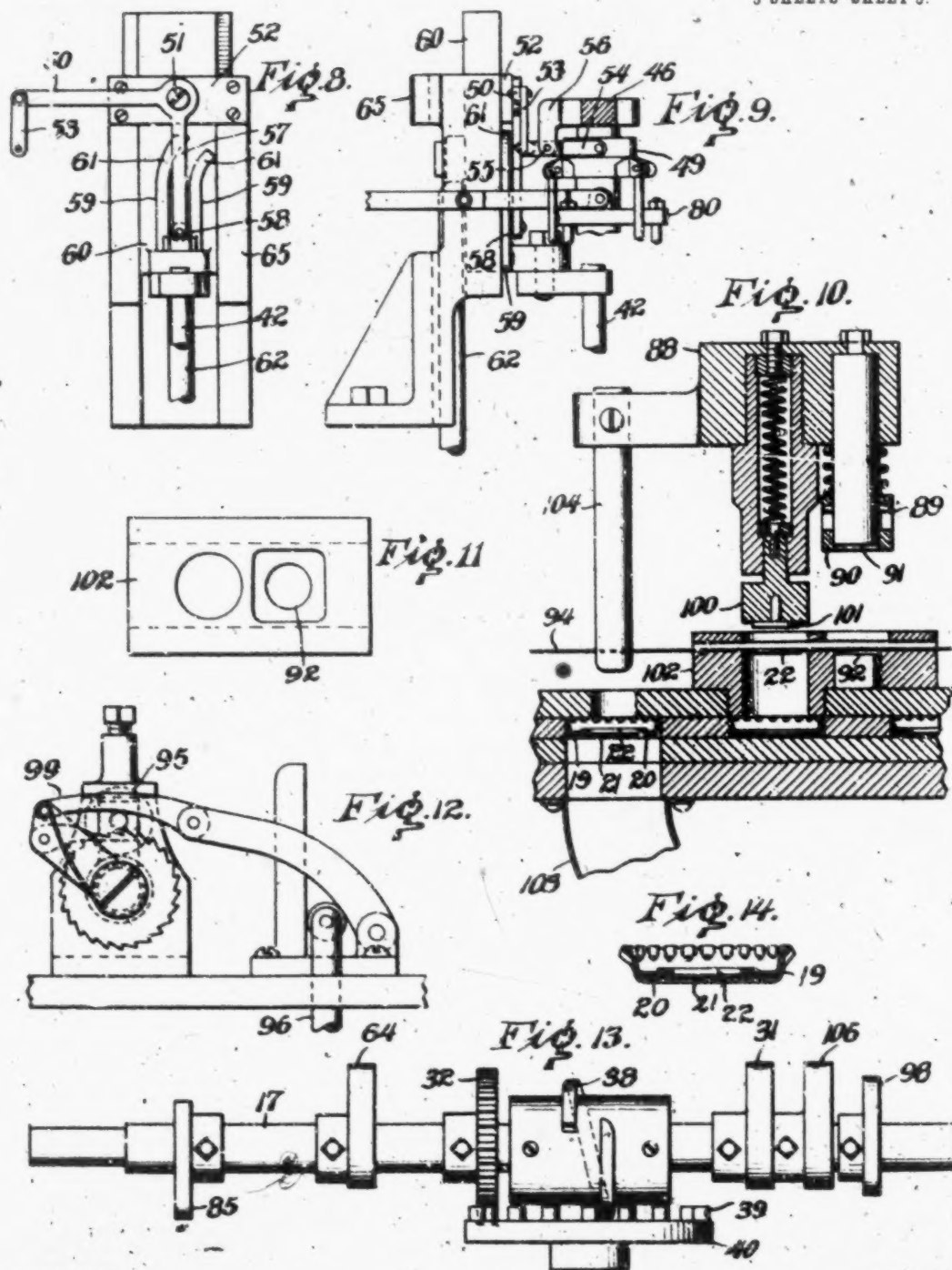
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993,288.

Patented May 23, 1911.

3 SHEETS-SHEET 6.



WITNESSES

Daniel Webster, Jr.
Pawtucket.

INVENTOR

Leonard Bartlett.

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Garry P. Van Wye
ATTORNEY

UNITED STATES PATENT OFFICE.

LEONARD BARTLETT, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR TO AMERICAN CORK AND SEAL COMPANY, OF PHILADELPHIA, PENNSYLVANIA, A CORPORATION OF MAINE.

BOTTLE-SEAL-ASSEMBLING MACHINE.

993,288.

Specification of Letters Patent.

Patented May 23, 1911.

Application filed April 15, 1908. Serial No. 490,065.

To all whom it may concern:

Be it known that I, LEONARD BARTLETT, a citizen of the United States, residing at Philadelphia, in the county of Philadelphia and State of Pennsylvania, have invented a new and useful Bottle-Seal-Assembling Machine, of which the following is a specification.

This invention relates to machines for assembling bottle seals in which rubber gaskets and aluminum protecting disks are used; and has for its object to provide a machine of the character described in which the metal sealing caps may be placed, and the rubber gaskets and aluminum protecting disks are automatically placed in position within the cap; a further object being to provide a suitable gasket cutting machine which will operate in conjunction with the driving mechanism of the assembling machine, and which will cut the rubber gaskets and deposit them within the metal cap; a further object being to provide suitable mechanism to cut out and form the aluminum disks, and to force the disk when formed into the cap after suitable pasting apparatus has deposited sufficient paste to secure the disk to the metal cap, whereby the aluminum disk is brought into close contact with the center of the metal cap and may be secured thereto by the paste.

It is also the object of this invention to provide simple and coördinate parts which will work together to make an effective assembling machine.

The invention is illustrated in the accompanying drawings in which—

Figure 1, is a side elevation of a bottle seal assembling machine constructed according to my invention; Fig. 2, is a view of the opposite side of the machine, with the cap hopper and feed mechanism removed; Fig. 3, is a top plan view of the machine; Fig. 4, is a vertical section of the gasket cutting machine; Fig. 5, is a sectional view thereof on the line 5—5 of Fig. 4; Fig. 6, is a sectional view on the line 6—6, of Fig. 4; Fig. 7, is a perspective view of one of the cutting blades shown in Figs. 4, and 5; Fig. 8, is a face view of a part of the operating device for the gasket cutting machine; Fig. 9, is a side view of the same; Fig. 10, is a vertical section of the aluminum disk forming and depositing apparatus; Fig. 11, is a plan

view of the forming and punching die; Fig. 12, is a side elevation of the operating mechanism for the aluminum feed; and, Fig. 13, is a side view of the main shaft and cams; and Fig. 14, is a sectional view of the seal assembled, on a larger scale.

In the drawings, like numerals of reference refer to the same parts in each of the views; and in practice I provide a frame 15, having a table, or platform 16, on which are mounted the assembling parts herein-
after described; and in the frame adjacent to the base thereof is mounted a shaft 17, which may be driven by a belt pulley as 18, by which the entire assembling machine may be operated.

The machine is adapted to assemble a seal, such as shown in Fig. 14, comprising a metal sealing cap, as 19, a rubber ring-shaped gasket 20, and an aluminum protecting disk 21, with a depressed center 22, adapted to contact with the center of the cap 19, within the gasket 20, and to be secured to said cap by adhesive material, or in any desired manner. To assemble these seals quickly, and in an economical manner, a hopper 23, is provided in which the metal caps may be placed, and in which apparatus of well known construction is operated to feed the caps down the chute 24, to a rotatable feed wheel 25', within the channel 25, which carries the caps around to the wheel 26, having spaced notches, as 27, in the periphery thereof into which the caps are fed, and by this wheel 26, are fed to the different parts of the assembling machine in regular and definite order.

To operate the parts just described, a shaft 28, is pivotally connected with the rocking bar 29, the opposite end of which is connected with the shaft 30, which is operated vertically by the cam 31, on the shaft 17. This mechanism operates the hopper feed mechanism in a manner well known, and consequently, not more fully illustrated here. The feed wheel 25', is rotated by the spur gear 32, on the shaft 17, which engages the spur gear 33, bracketed on the frame at 34, and which operates the beveled gears 35, and 36, and the shaft 37, connected with this wheel,—this part also being a well known construction. The notched wheel 26, is operated by means of a worm 38, on the shaft 17, which engages successively pins 39, on

the wheel 40, mounted on the shaft 41, on the top of which the wheel 26, is mounted, whereby the wheel 26, is rotated forward in regular steps to carry the caps to the several assembling parts, and leave them in position a sufficient length of time for the parts to operate upon.

It will be understood that the metal caps are formed in separate machines, or punches; and are placed in this machine solely for the purpose of having the gaskets and protecting disks placed therein. Consequently, the parts described thus far have to simply feed these caps to the wheel 26, so as to place a cap in each notch 27, with the proper side up to receive the gasket and disk.

It is one object of this invention to form the metal disk and cut it out, and also form or cut the rubber gasket as well as assemble these parts in the cap to form the seal. As the gasket is deposited first, I will describe this part at this point, and the other parts of the machine in the regular order in which they operate.

It will be understood that the several parts, or assembling devices, are spaced a suitable distance apart, so that when the wheel 26, is held stationary by the pin 42, engaging successively the holes 43, in this wheel, in a manner well known in such machines, one of the notches will be directly beneath each device, and will remain there a sufficient length of time for each device to operate.

Referring to the gasket forming machine, or device,—this part is specially shown in a partial view at the right of Fig. 2, and specifically in Figs. 4, 5, 6, and 7; and the operating means specifically in Figs. 8 and 9.

The gasket machine comprises a tube 44, of a size to receive a tubular section of rubber 45, as shown in Figs. 5, and 6; and the upper end of the tube 44, is secured in the arm 46, of the standard 47, and a second arm 48, supports the tube 44 centrally thereof, as particularly shown in Fig. 4. Slidably mounted on the tube 44, is an annular block 49, which is pivotally connected with a lever 50, which is pivoted at 51, to a cross plate 52, as specially shown in Fig. 8. The lever 50, is connected with the block 49, by the link 53, and yoke 54, which is pivoted at 55, to an arm 56, projecting from the arm 46. The lever 50, is provided with a depending arm 57, on the lower end of which is a friction roller 58, which is mounted between two guides 59, on a vertically movable block 60; and the upper ends of the guides are concentrically curved, as shown at 61, whereby when the block 60, descends until the roller 58, engages the curved parts of the guides, the roller will be carried laterally, as will be understood, and with it the lower end of the arm 57, of the lever 50, as will also be understood, causing the outer end

of the lever 50, to descend; and as this is connected with the block 49, through link 53, and yoke 54, the block 49, will be forced downward on the tube 44. The block 60, is connected with a shaft 62, secured to a strap 63, on a cam 64, on shaft 17, by which this block is moved in guide frame 65. An annular ring 66, is slidably mounted on the tube 44, and is provided with lugs 67, in which are pivotally mounted the feed pawls 68, preferably in number, and substantially triangular in shape, as shown at the right in Fig. 4, with the vertical side provided with teeth, as in order to take a firm hold on the rubber tube. Pivotaly mounted in the third corner of each pawl is a link 70, the upper end of which is pivotally connected with the annular block 49, and these links, three in number as shown, form the only connection between the block 49, and the ring 66, so that in lifting the annular block 49, the ring 66, will be raised a short distance through the links 70, and pawls 68; but these links being connected with the outer corners of the triangular-shaped pawls, the pawls will be drawn backward out of the slots 71, in the tube 44. When, however, the annular block 49, is driven downward, as previously described, the links will drive the pawls inward until in tight contact with the rubber tube, and the rubber tube will be carried downward a short distance with the pawls and ring 66, as will be understood, to feed the rubber tube the required amount to form a gasket. Mounted on the lower end of the tube 44, is a sleeve 72, on which is rotatably mounted a belt wheel 73, secured to a ring 74, to which is clamped a grooved ring 75, in the grooves of which are mounted blades 76, preferably three in number, and of the form shown specially in Fig. 7, each blade having a hooked end 77, in which is mounted a spring 78, whereby the ends of the blades are held normally against the cam ring 79, which is non-rotatable. This cam ring is secured to a head 80, by posts 81, and is vertically movable therewith. The head 80, is loosely mounted on the tube 44, and is operated vertically by a crank lever 82, pivoted to the frame at 83, and carrying a friction roller 84, which engages the cam 85, on the shaft 17, the head 80, being sufficiently loose to allow of operation by the lever 82.

In operation the pulley 73, is operated by a belt 86, which engages a pulley 87, on the shaft 37. When a cap is directly beneath the tube 44, and the rubber has been driven down the required length to form a gasket, the cam 85 operates to force the head 80, downward, and with it the cam ring 79, the cam surface of which bears against the hooked end of the blades 76; and as this ring descends, the blades are driven inward into the rubber tube 45; and as the blades

are in the rotatable part, they are carried around rapidly as they are forced inward, thereby cutting off a section of the rubber tube to form a gasket; and, as previously mentioned, the cap being directly beneath, the tube 44, the gasket when cut will drop into the cap, and will be carried forward by the next movement of the wheel 26, and another cap will be brought under the tube for the repetition of the operation. To insure the positive operation of the knives, I prefer to provide a belt tension device, as 86'. After the gasket is deposited in the cap, the cap and gasket are carried forward to the paste machine 87', where a suitable amount of paste, or adhesive material is deposited in any desired manner so as to engage the center of the cap within the gasket ring; and the cap and gasket are then carried forward to the aluminum disk former and die. This part comprises a frame 87', carrying the sliding head 88, in which is mounted the forming tool 89, comprising a spring-controlled contact block 90, and a plunger 91, which forces the aluminum into the cavity 92, to form the projecting portion 22, which afterward engages the center of the cap, as previously described. After the projection 22, is formed, the aluminum strip 94, is fed forward by the feed rolls 95, which are operated by the pawl mechanism shown in Fig. 12, operated by a plunger shaft 96, connected with a lever 97, operated by a cam 98, the pawl mechanism in Fig. 1, being indicated by 99. By this arrangement the aluminum is fed forward step by step as needed, and the required distance so that at the next movement the projecting portion 22, will be directly beneath the punch 100, and centrally thereof, so that the circular plate 101, of the punch will enter this projection, and after the disk is punched out and carried down through the die 102, the plate 101, will force the portion 22, into close contact with the center of the cap within the gasket ring, and the cement, or adhesive material will secure this portion to the cap whereby the rubber gasket will be permanently secured in position. After the seal is assembled, as described, it is carried forward to the chute 103, and a plunger 104, secured to the punch head, will insure the dislodgment of the completed seal, as will be understood. The punch is operated by a shaft 105, and cam 106, on the shaft 17.

As the operation of the several parts has been fully described in connection with each part, it will not be necessary to again describe the operation of the complete machine further than to state that as all of the parts are operated by the main driving shaft 17, on which the respective cams are mounted, and adjusted to bring into action the several parts at the proper time to insure the perfect working of the machine, all

the parts will work together harmoniously and automatically to insure the production of perfect seals.

Having thus described my invention, what I claim as new and desire to secure by Letters Patent of the United States, is—

1. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting device, and a disk forming device, and means to feed the caps from said feeding device to the gasket cutting device and disk forming device consecutively, for the purpose set forth. 75

2. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting device, and a disk forming and placing device, means to feed a cap successively from said feeding device to the other devices named, and means to operate said parts in unison, for the purpose set forth. 85

3. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting and placing device, a paste depositing device, and a disk depositing device, means to feed a cap successively from said feeding device to the other devices named, and means to operate said parts in unison, for the purpose set forth. 90

4. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting and placing device, a paste depositing device, and a disk placing device, means to feed a cap successively from said feeding device to the other devices named, and means to operate said devices harmoniously, for the purpose set forth. 100

5. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting and placing device, a paste depositing device, and a disk forming and placing device, means to feed a cap successively from said feeding device to the other devices named, and means to operate said devices in harmony, for the purpose set forth. 105

6. A bottle seal assembling machine comprising a cap feeding device, a gasket placing device, and a disk forming and placing device, means to feed a cap from said feeding device to the other devices successively, and means to operate all of said devices in unison, for the purpose set forth. 110

7. A bottle seal assembling machine comprising a cap feeding device, a gasket cutting and placing device, a paste depositing device, and a disk forming and placing device, and a driving shaft carrying cams and a gear, said cams being so mounted as to operate said parts in harmony, as and for the purpose set forth. 120

8. In a bottle seal assembling machine, a gasket cutting device comprising a material holder, a feeding device, a rotatable part, and means to rotate the same, spring-controlled blades mounted to move in a radial direction in said rotatable part, means to 125 130

force said blades into the gasket material periodically, and means to operate said feeding device alternately with said blade-forcing-means, for the purpose set forth.

- 5 9. In a bottle seal assembling machine, a gasket cutting device comprising a material holding tube, a slide block mounted thereon, a slide ring mounted on said tube beneath said block, triangular-shaped pawls pivoted
10 to said ring, and having teeth adapted to pass within slots in said holding tube to engage the gasket material, links connecting the outer corner of said pawls and said block, means to raise and lower said block
15 whereby said ring is raised and lowered and said pawls are operated to feed said material, a rotatable member at the bottom of said tube and means to rotate the same, blades in said rotatable member, and a cam
20 ring adapted to force said blades into the gasket material, and a main shaft on said machine adapted to operate said block and said cam ring alternately, as and for the purpose set forth.

- 25 10. In a bottle seal assembling machine, a disk forming and placing device comprising a pressure block and forming tool and die, and a cutting out die and placing tool carried by the same head, means to feed the
30 metal from said forming tool and die to said cutting out die whereby the metal that is acted on by the forming die at one stroke is operated on by the cutting out die at the next stroke and a disk with a cup-shaped
35 center and laterally-extending flange is formed and placed in position, and means to operate said device in harmony with the other parts of the assembling machine, for the purpose set forth.

- 40 11. In a bottle seal assembling machine, a disk forming tool and die and a combined cutting out die and placing tool carried by the same head, means to feed the metal from said forming tool and die to said cutting out
45 die whereby the metal that is acted on by the forming die at one stroke is operated on by the cutting out die at the next stroke with the disk unchanged in shape by the cutting

out die, said cutting out die and placing tool being spring controlled, for the purpose set forth.

12. In a device of the class described, the combination of mechanism for automatically cutting a strip of sealing substance into sections, mechanism for automatically positioning such sections within metallic caps, mechanism for automatically bringing said caps into position for receiving said sealing substance, mechanism for automatically forming a retaining member for said section, and mechanism for automatically placing and securing said retaining member in place within the cap, all of the mechanism being driven from a common power shaft, substantially as described.

13. In a device of the class described, the combination of mechanism for feeding strip of sealing substance into position to be cut into sections, means for automatically performing said cutting operation, a rotatable ring having a series of recesses therein adapted to carry metallic caps, means for automatically rotating said ring in a step by step movement, means for positioning the severed section of sealing substance within said cap, a reel carrying a roll of sheet metal, means for feeding said sheet of metal into position to have retaining members for the sealing substance formed and cut therefrom by forming and cutting dies, means for positioning and securing said retaining members within the cap, and means for depositing a drop of adhesive substance within the cap prior to the insertion of the retaining member, substantially as described.

14. In a bottle seal assembling machine, a gasket placing device, and a disk forming and placing device, means to feed a cap from said gasket placing device to said disk forming and placing device, and means to operate both of said devices in unison.

Dated this 8th day of April, 1909.

LEONARD BARTLETT.

Witnesses:

WM. A. BLAIR,

D. C. WAINWRIGHT.

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1232

Oct. 19, 1926.

M. MARSA

1,603,786

METHOD OF MANUFACTURING BOTTLE CLOSURES

Filed May 15, 1925

Fig. 1.

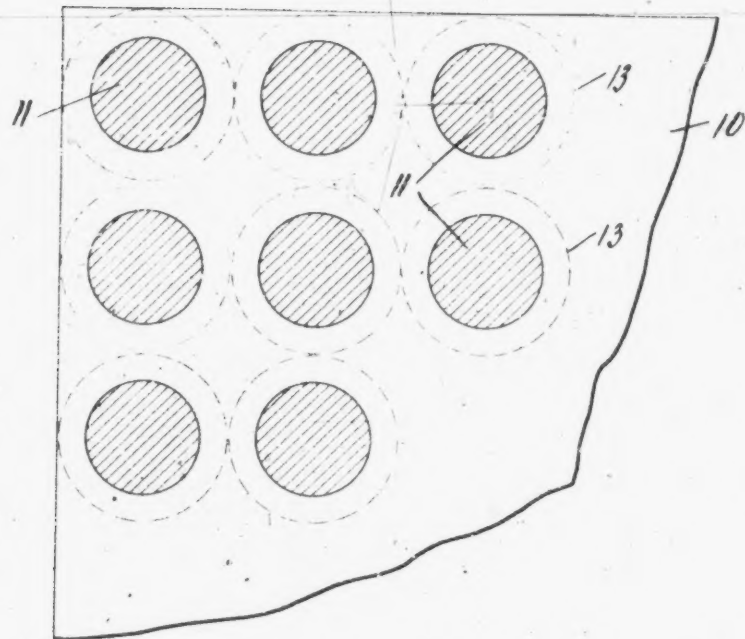


Fig. 2.

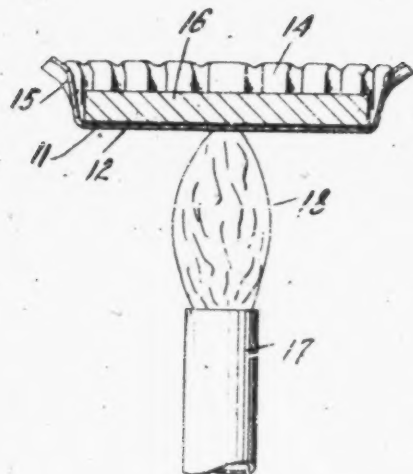
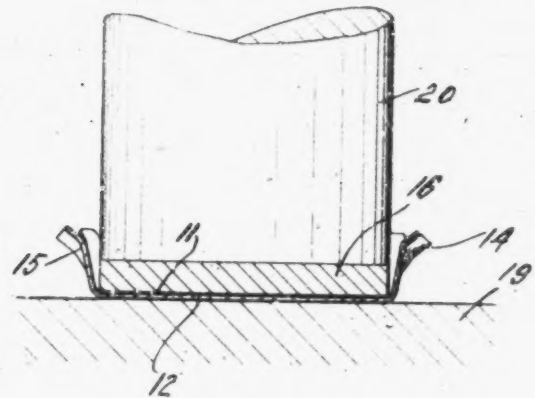


Fig. 3.



INVENTOR
M. Marsa
BY
Sigmond Hargy
ATTORNEY

Patented Oct. 19, 1926.

1,603,786

UNITED STATES PATENT OFFICE.

MELCHOR MARSA, OF NEW YORK, N. Y., ASSIGNOR, BY MESNE ASSIGNMENTS, TO NEW PROCESS CORK COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

METHOD OF MANUFACTURING BOTTLE CLOSURES.

Application filed May 15, 1925. Serial No. 30,531.

The present invention relates to the manufacture of bottle closures of the cap variety, including those commonly known as "crown corks".

Closures of this type usually comprise a metallic cap, having a corrugated flange to be locked to the exterior of the bottle neck, and a sealing disk or packing of cork or the like within and cemented to the cap and adapted to be seated against the top of the neck of a bottle, to make a gas- and liquid-tight joint.

Various kinds of cementing materials have been employed heretofore in producing these closures, and the method of making the closure depends mainly on the character of the cementing material employed. In some cases, for instance, fusible cements or binding materials are used; in others cements are employed which are coagulated by heat. As far as known, in all closures heretofore manufactured the cementing material is inserted into the metallic cap after the same has been shaped or formed, preferably by stamping operation, and the sealing or packing disk deposited into the cap on top of the cementing material, the assembled closure being then subjected to further operations, so as to unite the disk with the cap by the aid of the cement.

The main object of the present invention is to reduce the number of steps heretofore employed in assembling and uniting the elements of the closures, and thereby not only simplifying the machines by which the closures are assembled and united, but also reducing the period of manufacture due to the number of reduced steps of the method employed.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the method herein described consists, generally speaking, in applying a cementing material to the metal sheet from which the caps are cut and formed into caps, more particularly to those portions of the sheet which are to constitute the inner faces of the heads of the caps; forming the caps; inserting thereinto the packing disks; and then uniting the caps and disks by the aid of the cementing material.

The several steps of one of the many pos-

sible methods are illustrated in the accompanying drawings, in which:

Figure 1 illustrates the surface of a piece of sheet metal of which the caps are to be formed, having the cementing medium applied thereto in circular spots; Fig. 2 is a central vertical section taken through the assembled closure, the same being heated by a source of heat, such as a gas flame; and Fig. 3 is a similar section taken through the closure, the elements thereof being held under pressure while being cooled.

Referring now to the drawings, the numeral 10 indicates a piece of sheet metal, to one face of which is applied in circular spots 11 a cementing medium. This cementing medium is, preferably, a resinous substance in solution, it being odorless and tasteless in order to meet the requirements, and it being applied to the sheet in any suitable manner while in solution. The circular spots 11 are of a size corresponding substantially to that of the inner faces of the heads 12 of the caps to be formed, and are properly spaced corresponding to the spacing of the dies of the press on which the sheet is initially cut along the dotted lines 13 in the process of shaping and forming the caps.

After the cementing material has been applied to the metal sheet, the latter is subjected to high temperature, preferably, in an oven, to evaporate the solvent of the cementing material. The sheet may thus be handled without danger of removing the cementing material therefrom.

The sheet is then placed into a press and the caps shaped and formed, one of the same being indicated by the numeral 14 (Figs. 2 and 3). This cap comprises a head 12, as above stated, and a corrugated flange 15, the latter being applied to and locked to the exterior of the bottle neck to be closed. On top of the cementing material is placed within the cap a packing disk 16 of cork or the like, and thereafter heat is applied to the assembled elements of the closure. Any suitable source of heat may be used, for instance a gas burner 17, from which issues a jet 18, preferably striking the outer face of the head of the cap. The cementing material is thus fused. The assembled closure is thereupon placed on a support 19, and the

elements thereof placed under compression, for instance by a plunger 20 bearing against the exposed face of the packing disk 16, and the closure cooled in any suitable manner, to harden the cementing material, whereby the elements of the closure are firmly united.

This type of bottle closures is usually produced on automatic machines, all of which must, of necessity, contain a mechanism for depositing into the metal caps of the closures a cementing material, either in liquid or viscous form, or in the form of paper collet, treated with the cementing medium. It is obvious that the machines for carrying out the method herein described do not need the cement feeding and depositing means, and, therefore, they are not only simplified in construction but permit of a faster turning out of the closures. In the present method the cementing material is applied to the metal sheets, of which the closures are to be formed, simultaneously with the steps necessary for treating the same, preparatory to the cutting and shaping operations. These steps include shellacking of the sheets and decorating the same, that is to say printing thereon trade-marks or other information, which is to appear on the outer faces of the heads of the caps.

It is obvious that, while in the method herein described heat is applied to the assembled closures previous to the elements thereof being placed under compression, heat may be applied, to fuse the cementing material, before the packing disks are placed into the caps, or after the elements of the closure have been put under compression without departing from the invention, which lies mainly in applying the cementing medium to the sheet, of which the caps of the closures are to be shaped and formed. It is entirely immaterial, as far as the method, forming the subject matter of the present application for Letters Patent is concerned, at which stage of manufacture the said cementing medium is fused or softened.

It is also obvious that, instead of a fusible cementing medium, a cement may be employed which is coagulated by heat. In such case the closures, after the elements thereof have been assembled, are placed under compression and heated to coagulate the cement, whereby an almost instantaneous union is formed between the caps and the packing disks therein.

What I claim is:—

1. The method of manufacturing bottle closures of the cap variety which consists in, first, applying to one face of the metal sheet of which the caps of the closures are to be formed a fusible cementing material in spots,

each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, second, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material, third, inserting into a cap a packing disk of cork or the like, fourth, fusing the cementing material, and, fifth, placing the cap and the packing disk therein under pressure and cooling the assembled closure so as to harden the cementing material.

2. Those steps of manufacturing bottle closures of the cap variety which consist in, first, applying to one face of the metal sheet of which the caps of the closures are to be formed a cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, and, second, cutting the sheet around the said spot and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material.

3. The method of manufacturing bottle closures of the cap variety which consists in applying to one face of the metal sheet of which the caps of the closures are to be formed a fusible cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head of a cap to be formed, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head only of each cap is substantially covered with cementing material, inserting into a cap a packing disk of cork or the like, fusing the cementing material either before or after the insertion of the packing disk, and cooling the assembled closure under pressure so as to harden the cementing material.

4. The method of manufacturing bottle closures of the cap variety which consists in applying to one face of the metal sheet of which the caps of the closures are to be formed a cementing material in spots, each spot being of a size corresponding substantially to the area of the inner face of the head only of a cap to be formed, cutting the sheet around the said spots and shaping the caps, so that the inner face of the head of each cap is substantially covered with cementing material, inserting into a cap a packing disk of cork or the like, and thereafter subjecting the assembled closure to further treatment to unite the elements thereof.

Signed at New York, in the county of Kings and State of New York, this 8th day of May, A. D. 1925.

MELCHOR MARSA.

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E. AND J. ALBERTI.

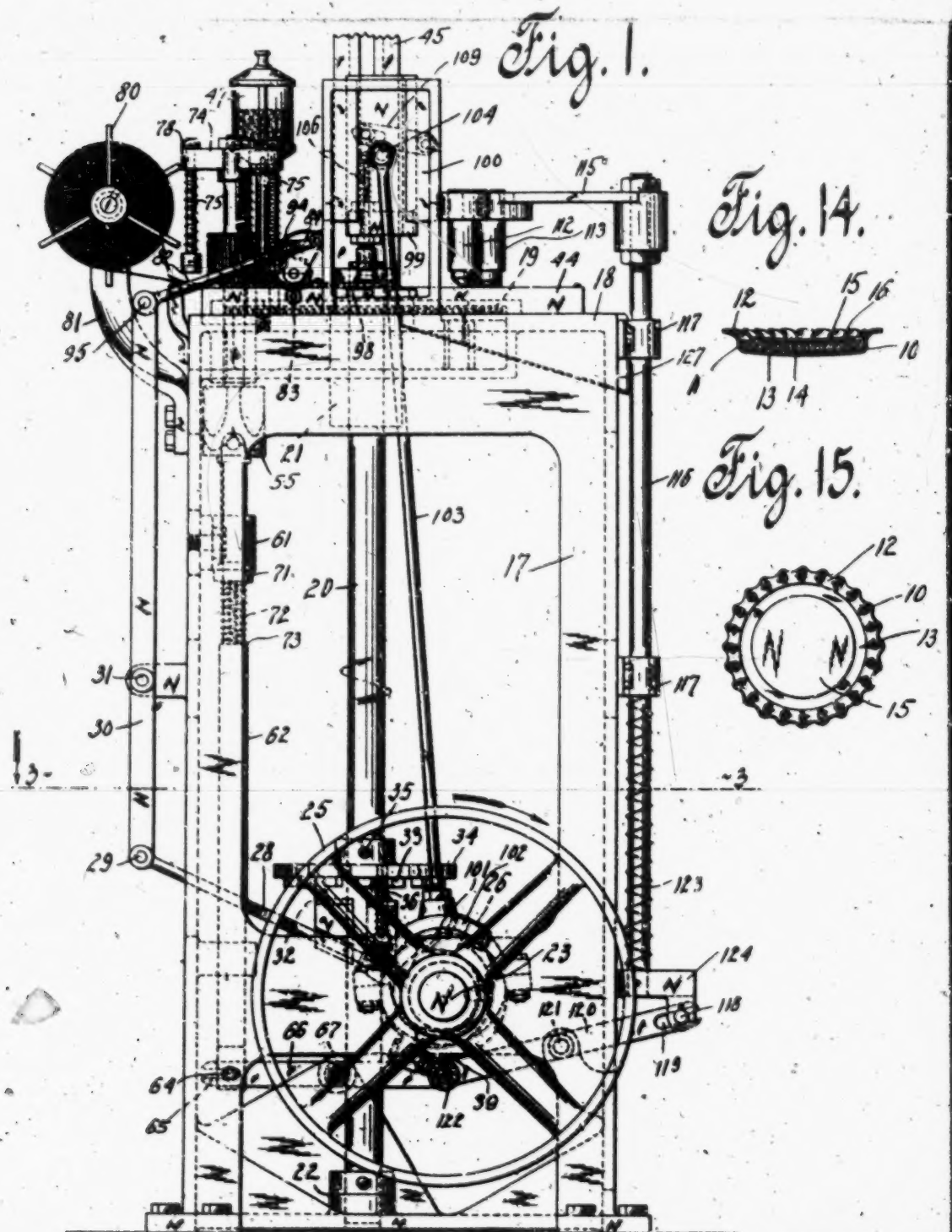
MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300.

Patented Dec. 27, 1921.

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E. AND J. ALBERTI.

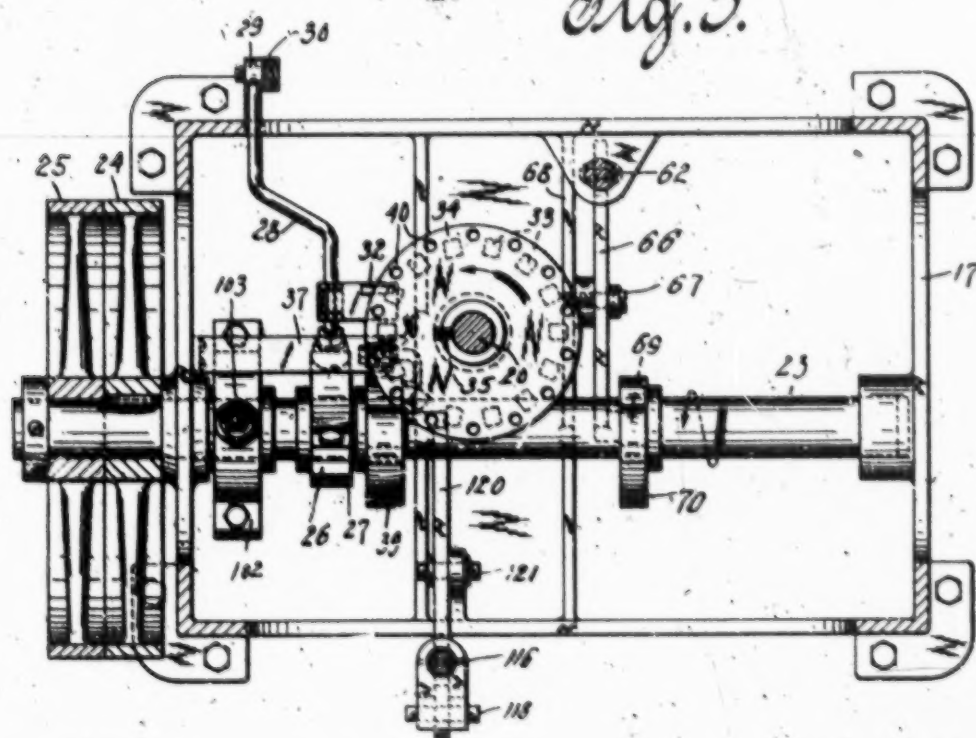
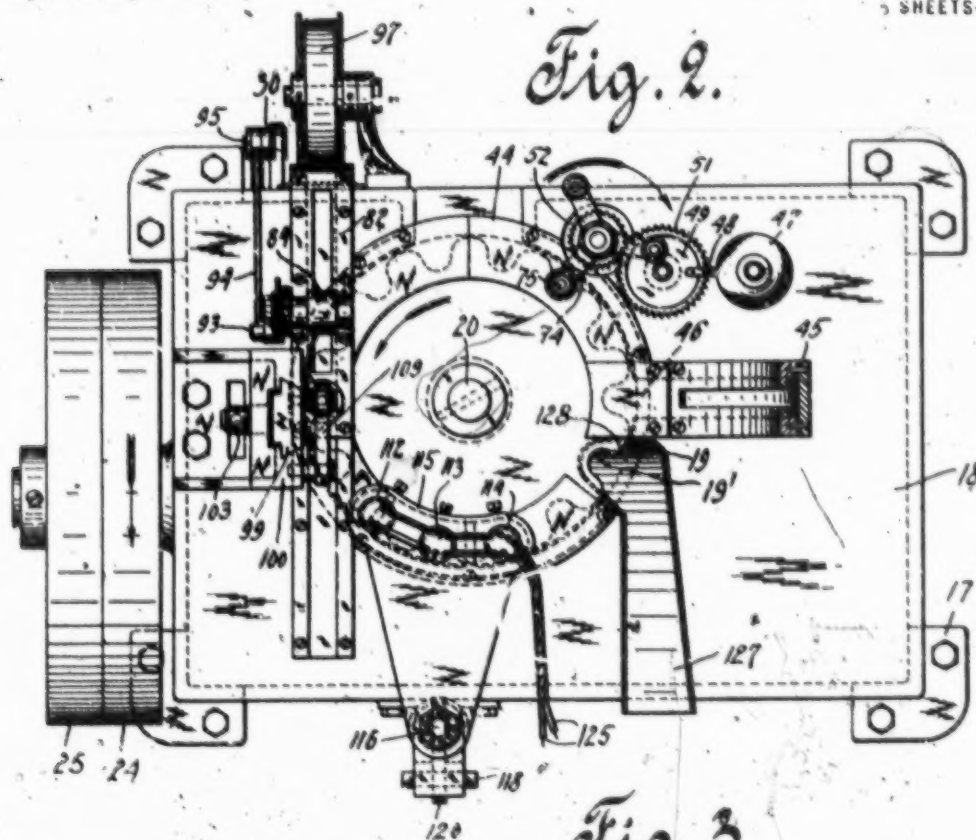
MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300.

Patented Dec. 27, 1921.

5 SHEETS—SHEET 2.



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of same.

INVENTORS
E. Alberti and
J. Alberti
BY
Symund R. Rupp
ATTORNEY

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E. AND J. ALBERTI.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300.

Patented Dec. 27, 1921.

5 SHEETS—SHEET 3.

Fig. 13.

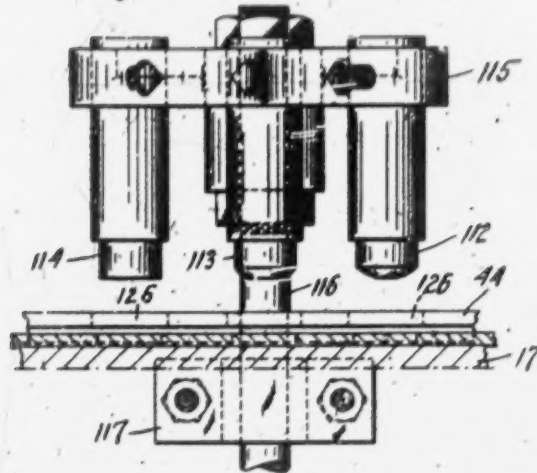


Fig. 4.

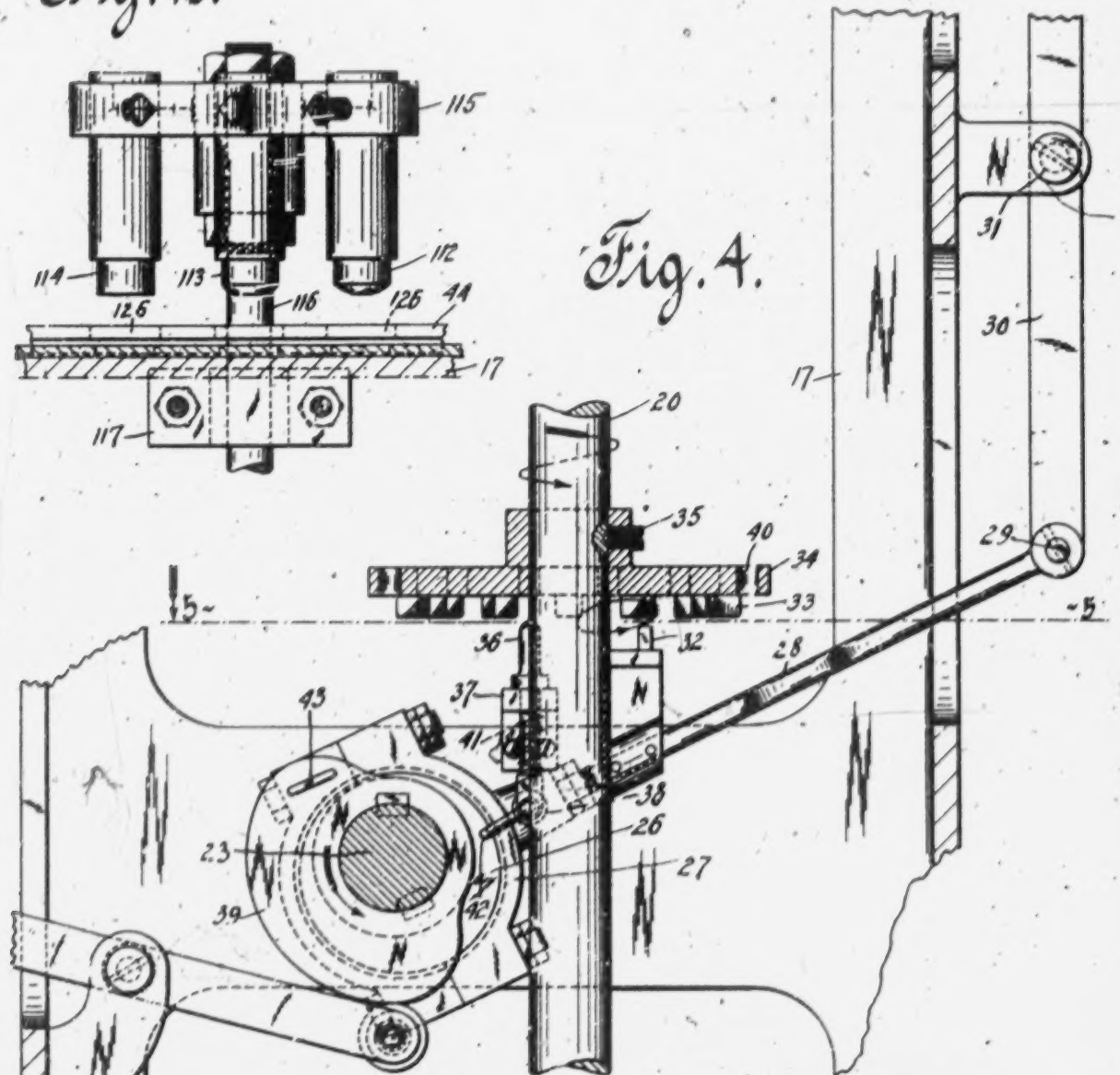
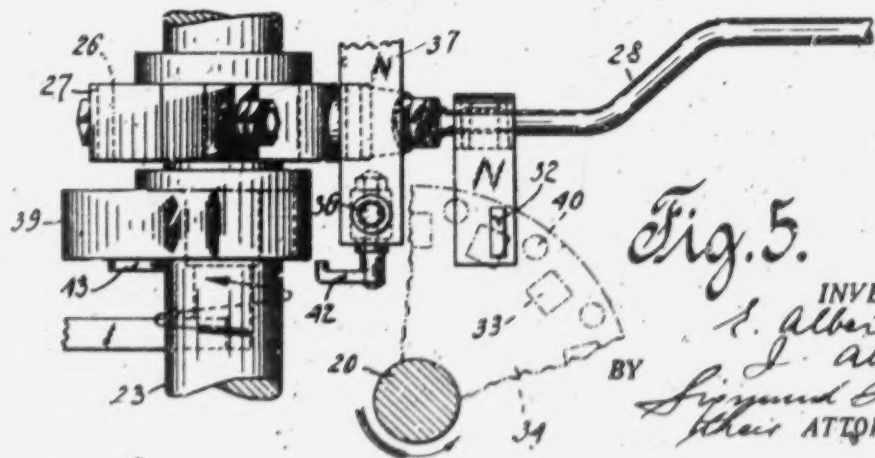


Fig. 5.



WITNESS
C. J. Crane.

INVENTORS
E. Alberti and
J. Alberti
BY
Sigmund Kierulff
ATTORNEY

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E. AND J. ALBERTI.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300.

Patented Dec. 27, 1921.

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Fig. 6.

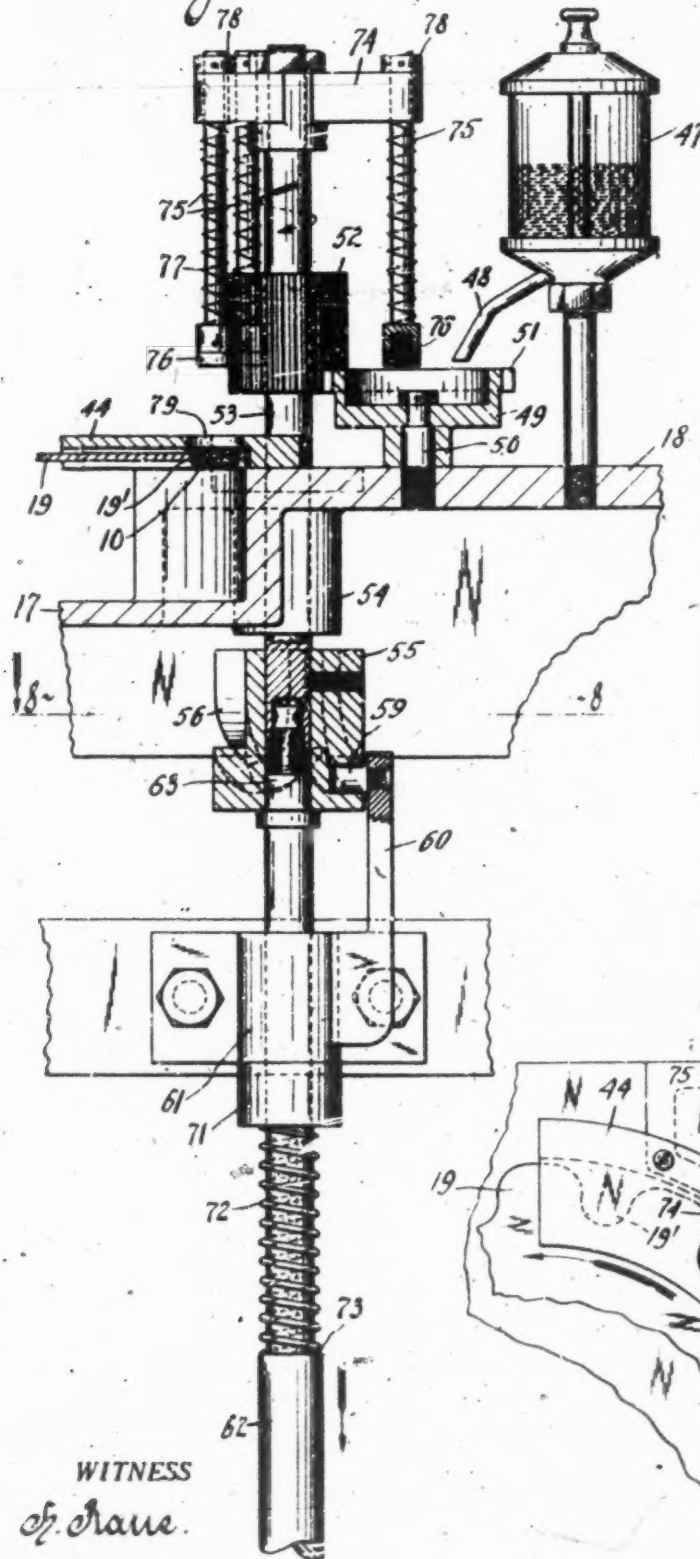


Fig. 8.

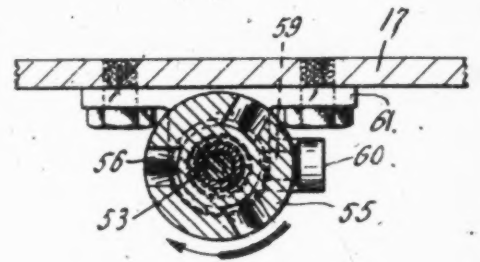
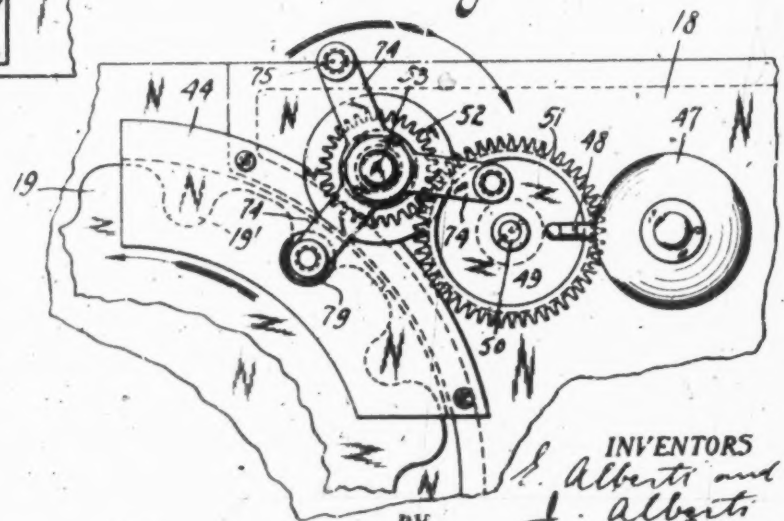


Fig. 7.



WITNESS
E. Kraus.

INVENTORS
E. Alberti and
J. Alberti
 BY *Symond Herzog*
 ATTORNEY

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E. AND J. ALBERTI.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

APPLICATION FILED JUNE 19, 1916.

1,401,300.

Patented Dec. 27, 1921.

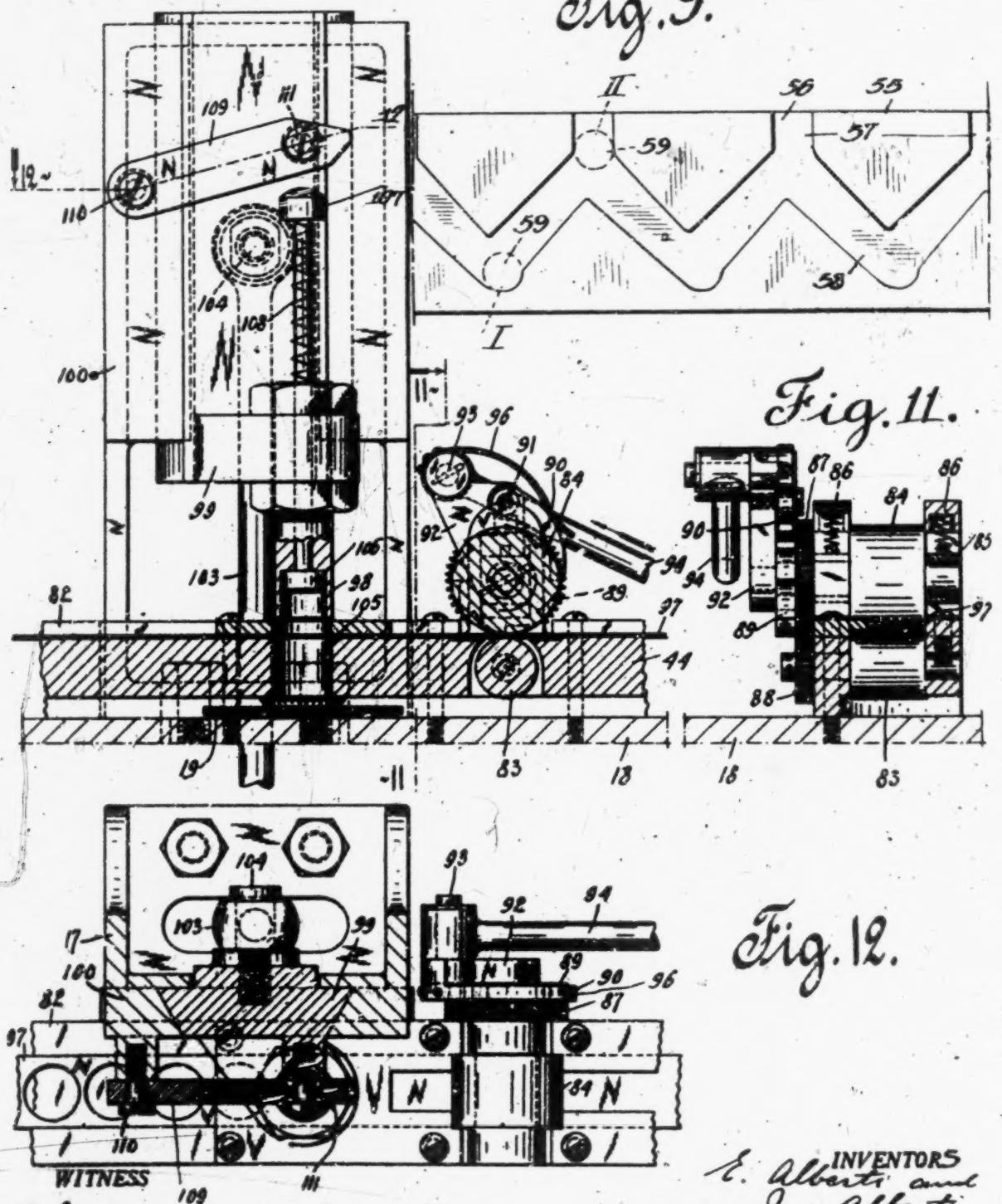
5 SHEETS—SHEET 5.

Fig. 10.

Fig. 9.

Fig. 11.

Fig. 12.



WITNESS
Ch. Kane.

INVENTORS
E. Alberti and
J. Alberti
BY
Sigmund H. H. H.
THEIR ATTORNEY

UNITED STATES PATENT OFFICE.

EMILIO ALBERTI AND JOHN ALBERTI, OF NEW YORK, N. Y., ASSIGNORS TO INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

MACHINE FOR MANUFACTURING CLOSURES FOR BOTTLES AND OTHER RECEPTACLES.

1,401,300.

Specification of Letters Patent.

Patented Dec. 27, 1921.

Application filed June 19, 1916. Serial No. 104,550.

To all whom it may concern:

Be it known that we, EMILIO ALBERTI and JOHN ALBERTI, citizens of the United States, and residents of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for Manufacturing Closures for Bottles and other Receptacles, of which the following is a specification.

The present invention relates to a machine for manufacturing closures or stoppers for bottles and other receptacles; more particularly it pertains to closures of the cap variety, including those termed "crown corks."

Closures of this type usually comprise a metallic cap or crown to be locked to the neck of the bottle, etc., and a sealing disk or packing of cork or the like, that is held within the cap, for instance by means of a suitable cementing medium. It has been found in practice that in many cases it is impracticable to permit the liquid contents of the bottle or other receptacle to come into contact with the sealing disk of cork or like material, as some liquids, such as pure water, mineral water, or beverages of delicate flavors, are apt to acquire "a corky taste." The commercial value of such liquids is thus greatly impaired. In order to obviate these and similar defects of the crown corks and like closures, it has been found convenient to cement or otherwise attach a thin protecting disk of ductile metal or other material to the exposed face of the sealing disk of the closure, which protecting disk should preferably be of a diameter that is substantially smaller than that of the sealing disk, but slightly larger than the inner diameter of the neck of the receptacle to which the closure is to be applied.

The main object of the present invention is to provide a simple and efficient machine for applying the protecting disks to the closures.

With this and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of

the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

The machine constructed in accordance with this invention comprises, broadly speaking, an intermittently moving closure transporting mechanism; in combination with means for applying a cementing medium to the exposed face of the sealing disks, means for cutting from a strip of metal or other material protecting disks and placing the same into the closures, and heating means for the cementing medium.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a side elevation of a machine constructed in accordance with this invention; Fig. 2 is a top plan view of the same; Fig. 3 is a section taken on line 3—3 of Fig. 1; Fig. 4 is a side elevation, partly in section, of the means for actuating the moving parts of the machine; Fig. 5 is a section taken on line 5—5 of Fig. 4; Fig. 6 is a side elevation of the mechanism which applies the cementing means to the exposed faces of the sealing disks of the closures; Fig. 7 is a top plan view thereof; Fig. 8 is a section taken on line 8—8 of Fig. 6; Fig. 9 is a development of a cam shown in Figs. 6 and 8; Fig. 10 is a side elevation of the means for feeding a strip from which the protecting disks are to be cut and the cutting and depositing means cooperating therewith; Fig. 11 is a section taken on line 11—11 of Fig. 10; Fig. 12 is a section taken on line 12—12 of Fig. 10; Fig. 13 is a rear elevation of the heating means of the apparatus; Fig. 14 is a central vertical section taken through a finished closure; and Fig. 15 is a bottom plan view of said closure.

Before describing the machine constructed in accordance with the present invention, the product manufactured thereon will be disclosed in connection with Figs. 14 and 15 of the drawings. In these figures a bottle closure of the crown cork type has been shown for purposes of illustration, it being, however, obvious that the machine may be used for manufacturing generally closures of the cap variety. In Figs. 14 and 15 the numeral 10 indicates a cap, comprising a

substantially cylindrical head 11 and a corrugated flange 12, which is adapted to be locked in the well known manner to the exterior of the bottle neck. In the cap is disposed a
 5 sealing disk or packing 13 of cork or like material, which is united with the cap, for instance, by an interposed cementing material 14, or in any other suitable manner. To the outer, or in other words to the exposed
 10 face of the sealing disk is attached concentrically with the latter a thin layer of material, such as, for instance chemically pure block tin, aluminum, an alloy of tin, or suitably prepared paper. This layer is made in
 15 the form of a disk, denoted by the numeral 15, its diameter being smaller than the diameter of the sealing disk and being stuck to the latter by an interposed cementing medium, shown at 16. This cementing medium
 20 should, preferably be of a type that is insoluble in liquids after it has set and formed a union between the packing and the protecting disk 15; it should be insoluble at normal temperatures and at temperatures above
 25 normal. It has been found in practice that albumen is particularly adapted for use in connection with these caps, it being inodorous, tasteless, soluble in water and thus readily preparable for use. Moreover albumen
 30 coagulates easily and is rendered insoluble at about 140° Fahrenheit, the coagulation resulting in a firm union between the packing of cork or the like and the protecting disk, such union being brought about almost in-
 35 stantaneously.

The machine for applying these protecting disks to the closures comprises a frame 17, including a horizontal table portion 18, above the plane of which is arranged a star wheel
 40 19, having recesses or pockets 19', into which are seated crown corks in their inverted positions. This star wheel is attached to a vertical shaft 20, which is suitably journaled in bearings 21 and 22 upon the frame and re-
 45 ceives intermittent rotary motion, to rotate in a like manner the star wheel 19 in the direction of the arrow shown in Fig. 2 of the drawings. Any suitable means may be pro-
 50 vided for this purpose, the one described herein being disclosed only for purposes of illustration. This means comprises a driving shaft 23, journaled in bearings upon the
 55 frame and driven in any suitable manner, for instance it may carry a fixed pulley 24 and a loose pulley 25, over which runs a belt (not shown in the drawings). To the driv-
 60 ing shaft is keyed an eccentric 26, to the strap 27 of which is attached a rod 28, that is pivoted at 29 to a lever 30, the latter being fulcrumed at 31 to the frame of the machine. To the rod 28 is fixedly secured an
 upwardly projecting finger 32, that is adapted to coact with projections 33 upon the under-
 65 face of a disk 34, the latter being rigidly attached, for instance by a screw 35, to the

shaft 20. As the eccentric actuates the rod 28, the path described by the finger 32 thereon during each revolution of said eccentric will be an ellipse, as clearly shown in dotted lines in Fig. 4 of the drawings, the result
 70 being that said finger is brought into engagement with one of the projections 33 upon the disk 34 and causes the said disk to move in the direction of the arrow shown in
 75 Figs. 3 and 5 of the drawings a predetermined portion of a complete turn, after which the said finger is disengaged from the said projection to be brought into engage-
 80 ment with the next projection in the series, and so on. In order to maintain the disk 34 stationary while the finger 32 is disengaged from a projection and brought into engage-
 85 ment with the next in the series, there is a centering lug 36 provided. This lug is slidably disposed in a bracket 37, its lower free
 90 end carrying a roller 38, that is adapted to cooperate with a cam 39, the latter being keyed to the driving shaft. The lug coacts with a row of apertures 40 in the disk 34, the cam and the eccentric being keyed to the
 95 shaft in such relation that immediately before the finger 32 is disengaged from a projection 33 on the disk 34, the said centering lug is forced into one of the apertures 40 and held therein until the said finger is about
 100 to be brought into engagement with the next projection in the series, when a spring 41 coiled upon the centering lug, unseats the latter. There is provided an additional means for disengaging the centering lug 36
 105 from the disk. This means comprises an extension 42 upon the centering lug in the path of a projection 43 upon the cam 39. This projection forces the extension 42 at the
 110 proper moment downward, thereby disengaging the center lug from an aperture 40. This additional means is provided in order to prevent breakage of the moving parts of the machine in case the spring 41 should fail to act.

Above the star wheel 19 is mounted upon the table portion 18 a guide 44 for the purpose of holding the crown corks upon the
 115 said star wheel. The crown corks are fed in their inverted positions one after the other to the recesses 19' of the star wheel by any suitable means, for instance the said crown
 120 corks may be placed into a hopper and brought by suitable feeding means in proper position into a chute 45, that leads to an aperture 46 in the guide 44. Through this
 125 aperture the crown corks are caused to move by means (not shown in the drawings) one after the other into the recesses 19' in the star wheel. A device of this type is dis-
 130 closed in application for U. S. Letters Patent, filed by Alexander Bogdanffy and John Alberti, on Oct. 16, 1913, under Serial #795,481. Obviously a crown cork is fed to
 135 a recess when the star wheel is at rest, the

latter being mounted in such a manner upon the shaft 20 that, whenever the star wheel is at rest, one of its recesses will be in alinement with the aperture 46 in the guide 44.

The crown corks are preferably assembled on a separate machine and brought into the hopper communicating with the chute 45, although the machine herein described may be combined with and form part of the assembling machine.

The star wheel conveys the crown corks step by step to a mechanism which applies adhesive material to the exposed faces of their sealing disks. The adhesive material is obviously applied to that area of a sealing disk which is to be covered by a protecting disk 15. The mechanism comprises a container 47, holding a cementing medium in liquid form of the type above described. This container is provided with a spout 48, through which the adhesive material flows drop by drop into a, preferably, cylindrical open receptacle 49, that is rotatably mounted upon a spindle 50, the latter being fixedly secured to the table portion 18. Upon this receptacle is formed a gear 51, in mesh with a gear 52, that is keyed or otherwise fixedly attached to a shaft 53, the latter being rotatably mounted in a bearing 54, and carrying upon its lower end a cam 55, that is shown in its developed form in Fig. 9 of the drawings. This cam comprises a cylindrical member, having a peripheral groove 56, said groove comprising three vertical portions 57, which are connected by curved portions 58. In the groove is seated a lug 59, formed upon a standard 60, that is attached to or made integral with a guide 61, into which extends shiftably a rod 62, the upper reduced end 63 of which projects into the cam 55, while its lower end carries a pin 64, that is seated in a slot 65 of a lever 66. This lever is fulcrumed at 67 to a bridge 68 upon the frame 17, and carries upon its free end an anti-friction roller 69, that is in engagement with a cam 70, the latter being keyed to the driving shaft 23. The reduced portion 63 of the rod 62 is connected with the shaft 53 to cause the latter to reciprocate with the rod 62, but allowing the said shaft to rotate upon the said rod. The cam 70 elevates the rod 62, and for lowering the latter there is loosely mounted upon the same a collar 71, against which bears one end of a spring 72, that is coiled upon the said rod, its other end bearing against a shoulder 73 thereon. As the rod 62 is elevated, its collar 71 will abut against the guide 61, whereby the spring 72 is compressed. After the rod has completed its upward stroke and the cam 70 allows it to descend, the spring 72 expands, thereby forcing the rod 62 and the parts connected therewith downward, keeping continuously the anti-friction roller 69 in contact with the cam 70. As the rod

62 is reciprocated, the lug 59 cooperating with the groove 56, causes the shaft 53 to be rotated step by step. When the shaft 53 is in its uppermost position (Fig. 6), the lug 59 is in one of the curved portions 58 of said groove, as shown in dotted lines in Fig. 9 of the drawings (position I). As now the rod 62 descends, the cam 55 is given a partial turn until the lug is brought into the position indicated by the numeral II in Fig. 9 of the drawings. During the further descent of the rod, the shaft 53 is held against rotary motion, owing to the fact that the lug 59 travels in one of the straight portions 57 of the groove. During the upward motion of the rod 62, for some time the shaft 53 is held against rotary motion, but will be given a partial turn when the lug 59 reaches again one of the curved portions 58 of the cam. The purpose of this arrangement will be explained hereinafter.

To the upper end of the shaft 53 is attached a star-like bracket 74, comprising in the case illustrated three arms, in each of which is shiftably mounted a spindle 75. The lower free end of each spindle carries a cylindrical block 76 of rubber or like material. A spring 77, wound upon each spindle, causes the same to descend, its downward movement being limited by a stop 78, which is adapted to abut against the upper face of the respective arm of the bracket 74. The upper face of the bottom of the receptacle 49 is disposed a considerable distance above the upper face of the star wheel, as clearly appears from Fig. 6 of the drawings. The three spindles 75 are located in relation to the star wheel and the receptacle 49 in such a manner that one of the same is, when the shaft 53 is held against rotation, in alinement with the said receptacle and another one is adapted to move through an aperture 79 in the guide 44 into contact with the exposed face of a crown cork on said star wheel. The diameter of the aperture 79 is somewhat larger than that of the head portion of a crown cork, as appears from Fig. 6 of the drawings.

The operation of the cementing material applying device is as follows: When the rod 62 is caused to move downward, one of the rubber blocks 76 contacts with the inner face of the receptacle 49 before another one of said blocks is brought into contact with the exposed area of the crown cork in alinement with the aperture 79 in the guide 44. It is to be noted that the star wheel moves while the rod 62 and the parts carried thereby move upward, and is caused to come to a stop when the said rod moves downward or at least during that period of the downward motion when one of the rubber blocks 76 is caused to contact with the exposed face of the sealing disk of a crown cork. The rubber block coming into con-

tact with the bottom of the receptacle 49 is coated upon its plane underface with adhesive material, and is then moved, upon the next partial turn of the shaft 53, into registering position with the aperture 79 when, in moving downward, it applies the adhesive to a portion of the exposed face of the sealing disk of the crown cork resting therebelow. The springs 77 and the spindles 75 permit a rubber block to contact with a sealing disk for some time, the stroke of the rod 62 being greater than the distance between the sealing disk and the lower face of a block 76, considering the highest position of a block. Inasmuch as the upper face of the bottom of the receptacle 49 is disposed a considerable distance above the star wheel, a rubber block will be in contact with the bottom of the receptacle 49 for a longer period of time than the block is in contact with a sealing disk. There will be ample time thus to coat the underface of a block with adhesive. Inasmuch as the receptacle 49 is rotated, the rubber blocks will contact always with other spots of the receptacle 49, and inasmuch as a rubber block, when in the receptacle, is dragged along the bottom thereof, a proper coating of a block therein will take place.

The crown corks to which adhesive has been applied are conveyed by the star wheel to the means which cuts the protecting disks from a strip and places the same into the crown corks. The strip of metal or other material, from which the protecting disks are to be cut, is wound upon a reel 80, which is suitably journaled in a bracket 81. From this reel the strip is conducted into a guide 82, to pass between feeding rollers 83 and 84. The feeding roller 83 is journaled in the table portion of the machine frame, while the roller 84 is journaled in bearings 85, which project above the table portion and are under the tension of springs 86, forcing the roller 84 toward the roller 83. To the spindle of the roller 84 is fixedly attached a gear 87, in mesh with a pinion 88, that is keyed to the spindle of the roller 83. The roller 84 is actuated by a pawl and ratchet-wheel mechanism. For this purpose a ratchet wheel 89 is fixedly attached to the spindle of the roller 84, in mesh with a pawl 90, that is pivoted at 91 to a frame 92, the latter being oscillatably mounted upon the spindle of the roller 84. To this frame is pivoted at 93 a connecting bar 94, the other end of which is pivoted at 95 to the lever 30 above described. The lever is actuated, as above described, by the eccentric 26. When this eccentric moves the connecting bar in the direction of the arrow indicated in Fig. 10, the frame 92 is shifted so as to bring the pawl 90, which is under the tension of a spring 96, into engagement with one of the teeth of the ratchet wheel, and as the said connecting bar moves in the opposite direction, the feeding rollers are caused to rotate and to advance the strip 97, from which the protecting disks are to be cut, to the cutting means of the machine. The cutting means comprises a tubular punch 98, secured in any suitable manner to a slide 99, that is adapted to reciprocate in a vertical guide 100, the latter being attached to the table portion of the machine frame. The slide is actuated from the driving shaft 23 in the following manner: Upon the said driving shaft is mounted an eccentric 101, its strap 102 having an eccentric rod 103, that is pivoted at 104 to the said slide. The eccentrics 101 and 26 are timed in such a manner that whenever the star wheel is in motion, the slide 99 is caused to move upward and, whenever the star wheel is at rest, the said slide moves downward, whereby the punch 98 cuts a protecting disk from the strip 97, which disk is automatically forced through an opening 105 in the guide 44 into a crown cork, that is held stationary in alinement with the said opening. The means for forcing the disk into the crown cork comprises a stem 106, part of which is disposed within the tubular punch 98, its upper end projecting above the said punch and being provided with a head 107. A spring 108, coiled upon the said stem, rests against the said head and the slide. With the head cooperates a lever 109, that is fulcrumed at 110 and 111 to the guide 100 and slide 99, respectively. This lever is disposed above the head of the stem 106. When, therefore, the slide moves downward and cuts a protecting disk, the lever 109 will be brought into contact with the head 107 after the cutting operation is performed, but before the downward stroke of the slide is completed. After engagement, the stem will be forced downward by the lever 109 and the protecting disk into the crown cork. Upon the upward stroke the spring 108 expands and returns the stem to the position shown in Fig. 10 of the drawings.

The protecting disk having been deposited in the crown cork, the latter is transported by the star wheel within the reach of heating means, which coagulates the cementing medium so as to form a firm union between the protecting and sealing disks, said heating means serving at the same time to flatten the protecting disk to prevent the formation of wrinkles which would materially decrease the value of the product obtained. For this purpose one or more plungers may be used, which may be heated in any suitable manner. In the case illustrated in the drawings there are three plungers made use of, denoted in their order by the numerals 112, 113 and 114. These plungers are carried by and fixedly attached to a bracket 115, that is secured to a recipro-

cable rod 116, mounted in guides 117. Upon the lower end of this rod is formed a pin 118, seated in a slot 119 of a lever 120, that is fulcrumed at 121 to the frame of the machine, and provided upon its free end with an anti-friction roller 122, cooperating with the cam 39 above described. A spring 123, coiled upon the rod 116 and bearing against a head 124 upon the lower portion thereof and against one of the guides 117, holds continuously the anti-friction roller 122 in contact with the cam 39 and causes a downward movement of the plungers. These plungers are heated in the case illustrated in the drawings electrically, the electric conductors being shown at 125, but the means which translate the electric energy into heat has not been shown, as the same is well known and does not form part of this invention. The rod 116 is caused to move on its upward stroke when the star wheel is moving, and to descend when the said star wheel is at rest, whereby the heated plungers move through apertures 126 in the guide 44 into contact with the protecting disks in three neighboring crown corks, the apertures 126 being obviously in alinement with recesses in the star wheel when the latter is at rest. Heat is thus transmitted by the protecting disks, which are in contact with the plungers, to the cementing medium, which is thereby coagulated, and forms a firm union between the protecting and sealing disks. The underface of the plunger 112, which is the first in order to contact with a sealing disk, is convex, so that it comes into contact with the central portion only of a protecting disk. The underface of the next plunger in the series, to wit: plunger 113, is less convex so that it will contact with a larger area of a protecting disk, and the underface of the plunger 114 is flat, thus making contact throughout the area of a protecting disk. The purpose of this arrangement is to expel air between the protecting and sealing disks, which air would prevent a proper union between the same. Another purpose of this arrangement is to gradually and effectively flatten the protecting disks, or in other words to prevent the formation of wrinkles in the said disks, which greatly impair the commercial value of crown corks of this type.

After this operation, the crown corks are advanced to a chute 127, into which they are caused to move by an abutment 128 upon the machine frame. In this chute the crown corks slide into a collecting receptacle (not shown).

What we claim is:—

1. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the seal-

ing disk of the complete closure, means for placing a protecting disk on top of and in contact with the cementing material, and means for applying pressure to the closure for maintaining said contact.

2. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the complete closure, means for placing a protecting disk on top of and in contact with the cementing material, and means for applying pressure to the closure for maintaining said contact and flattening the protecting disk.

3. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the closure, means for placing a protecting disk on top of and in contact with the cementing material, and a plurality of plungers acting in succession for applying pressure to the closure for maintaining said contact, the acting underface of the last plunger in the series being plane and those of the others convex, whereby they flatten gradually the protecting disk.

4. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the complete closure a suitable cementing medium adapted to be coagulated by heat, means for placing a protecting disk on top of and in contact with the cementing medium, and means for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained.

5. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the complete closure a suitable cementing medium adapted to be coagulated by heat, means for placing a protecting disk on top of and in contact with the cementing medium, and a heating plunger for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained.

6. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the closure a suitable cementing medium adapted to be coagulated by heat, means for placing a protecting disk on top of and in contact with the cementing medium, and a plurality of heated plungers acting in succession for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained, the acting underface of the last plunger in the series

being plane and those of the others convex, whereby they flatten gradually the protecting disk.

7. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the complete closure, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing material, and means for applying pressure to the closure for maintaining said contact.

8. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the complete closure, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing material, and means for applying pressure to the closure for maintaining said contact and flattening the protecting disk.

9. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing material to the exposed face of the sealing disk of the closure, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing material, and a plurality of plungers acting in succession for applying pressure to the closure for maintaining said contact, the acting underface of the last plunger in the series being plane and those of the others convex, whereby they flatten gradually the protecting disk.

10. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the complete closure a suitable cementing medium adapted to be coagulated by heat, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing medium, and means for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained.

11. In a machine for applying protecting disks to closures of the cap variety, the com-

bination with means for applying to the exposed face of the sealing disk of the complete closure a suitable cementing medium adapted to be coagulated by heat, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing medium, and a heating plunger for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained.

12. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying to the exposed face of the sealing disk of the closure a suitable cementing medium adapted to be coagulated by heat, means for cutting a protecting disk from a strip and placing the same on top of and in contact with the cementing medium, a plurality of heated plungers acting in succession for placing the parts of the closure under pressure and coagulating the cementing medium while the pressure is maintained the acting underface of the last plunger in the series being plane and those of the others convex, whereby they flatten gradually the protecting disk.

13. In a machine for applying protecting disks to closures of the cap variety, the combination with means for applying a cementing medium to a portion of the exposed face of the sealing disk of the closure, means for cutting from a strip of material a protecting disk of a diameter smaller than that of the sealing disk and placing the same concentrically with the sealing disk on top of and in contact with the cementing medium, and means for applying pressure to the closure for maintaining said contact.

14. In a machine for applying protecting disks to closures of the cap variety, a pressure applying means comprising a plurality of plungers, the acting surface of at least one of said plungers being plane and those of the others convex.

Signed at New York, in the county of Kings and State of New York, this 7th day of June, A. D. 1916.

EMILIO ALBERTI.
JOHN ALBERTI.

Witnesses:

FRANZ H. D. WOLF,
SIGMUND HERZOG.

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No. 887,883.

PATENTED MAY 19, 1908.

W. H. WHEELER.

APPARATUS FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED SEPT. 20, 1906. RENEWED OCT. 3, 1907.

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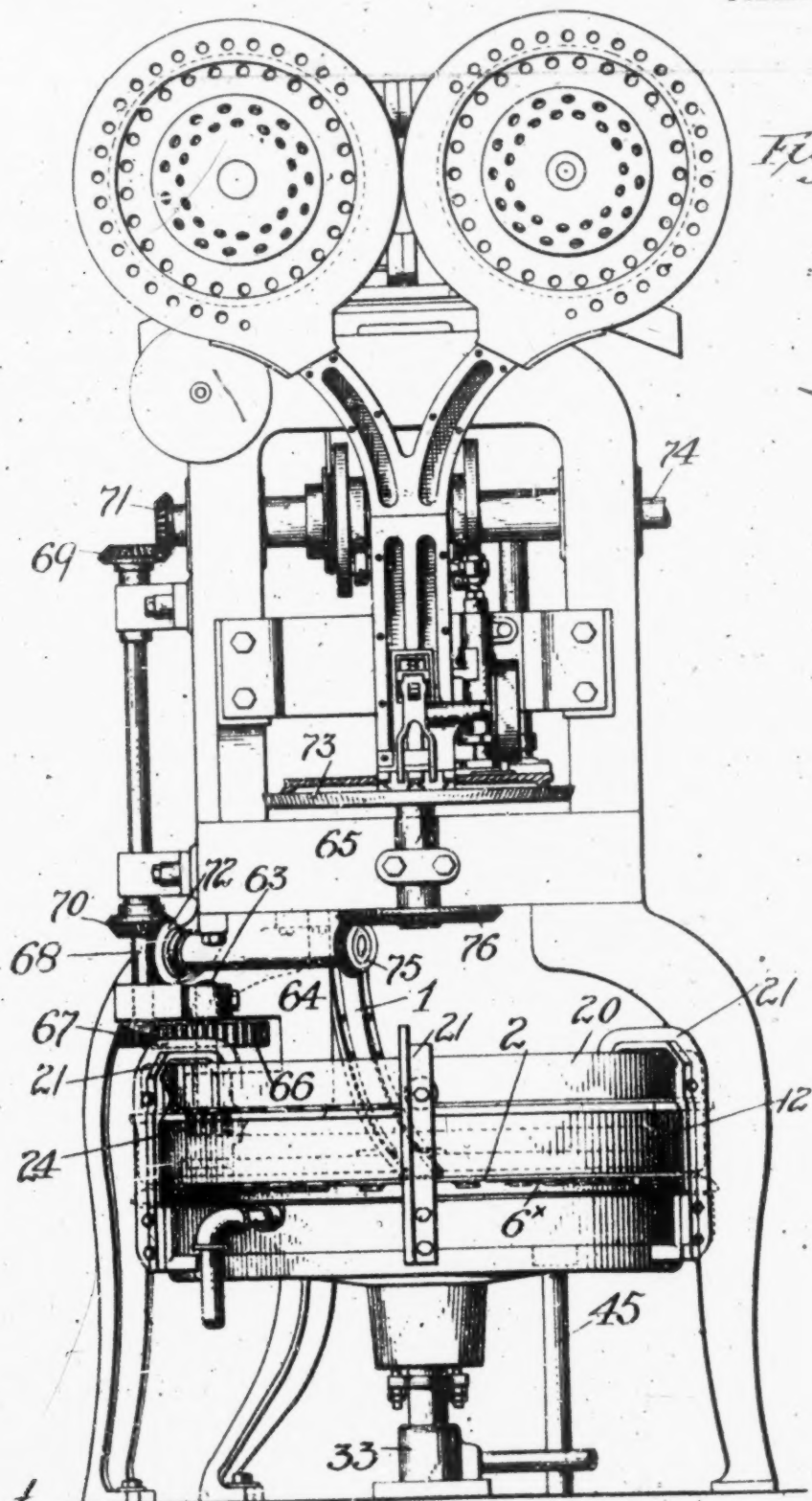


Fig. 1.

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W. E. Curran
Edward N. Sartor

Inventor
WILLIAM H. WHEELER
By *Spier, Middleton, Donardson & Spier*
Attys.

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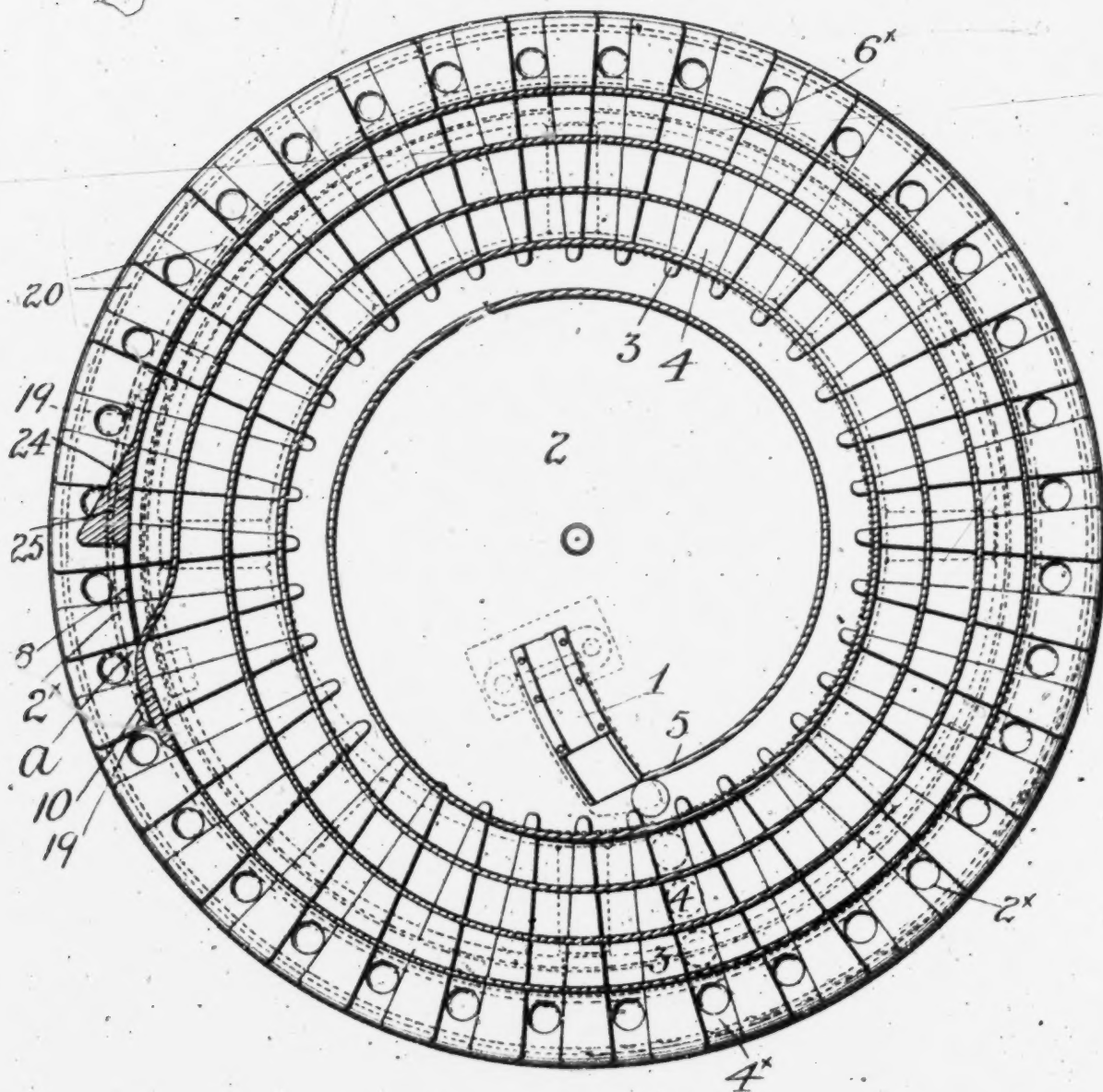
W. H. WHEELER.

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APPLICATION FILED SEPT. 20, 1905. RENEWED OCT. 3, 1907.

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Fig 2



Attest
R. C. Curran
Edward H. Linton

Inventor
WILLIAM H. WHEELER
by Spear, Middleton, Donovan & Spear
Attys.

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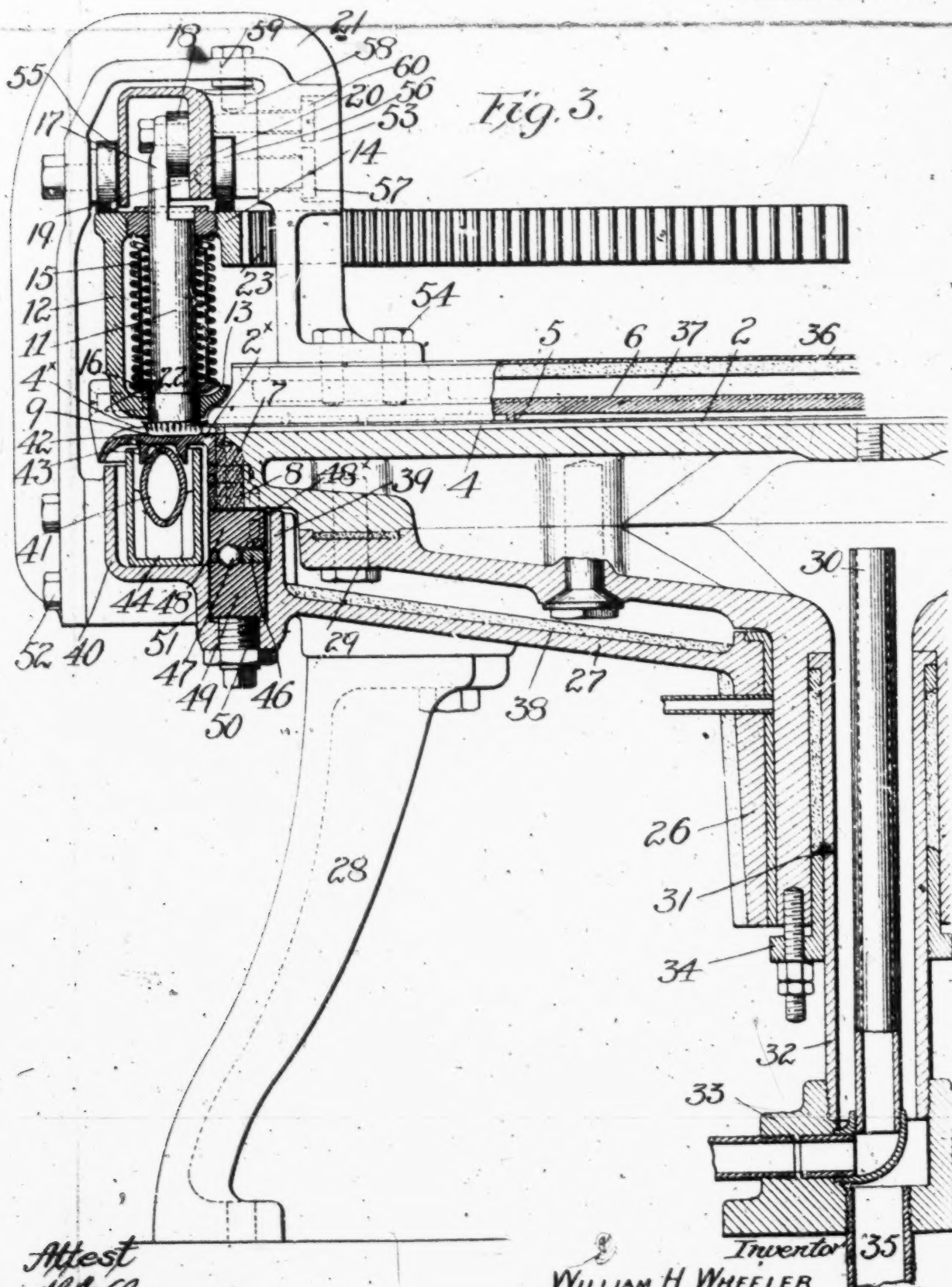
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W. H. WHEELER.

APPARATUS FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED SEPT. 20, 1905. RENEWED OCT. 3, 1907.

4 SHEETS—SHEET 3.



Attest
 H. B. Curran
 Edward H. Lento

WILLIAM H. WHEELER
 by Spear, Middleton, Donaham & Spear
 Attys.

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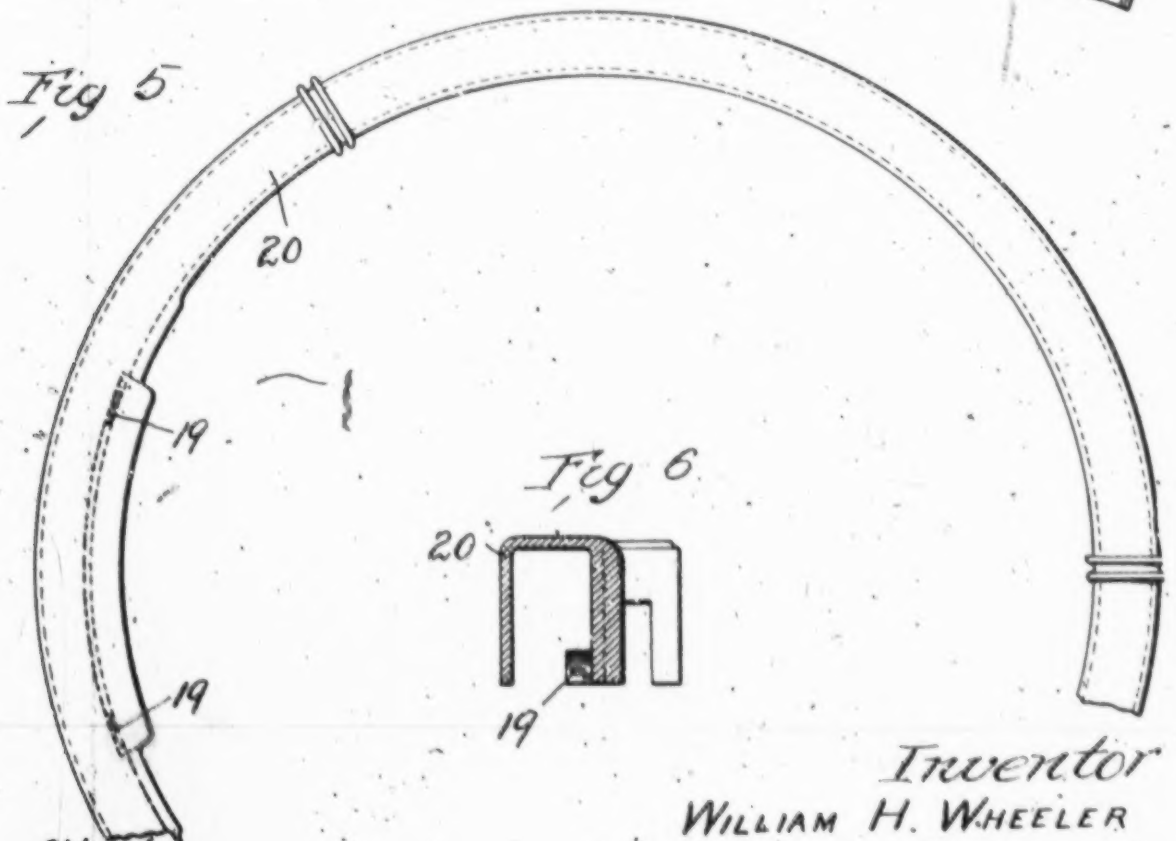
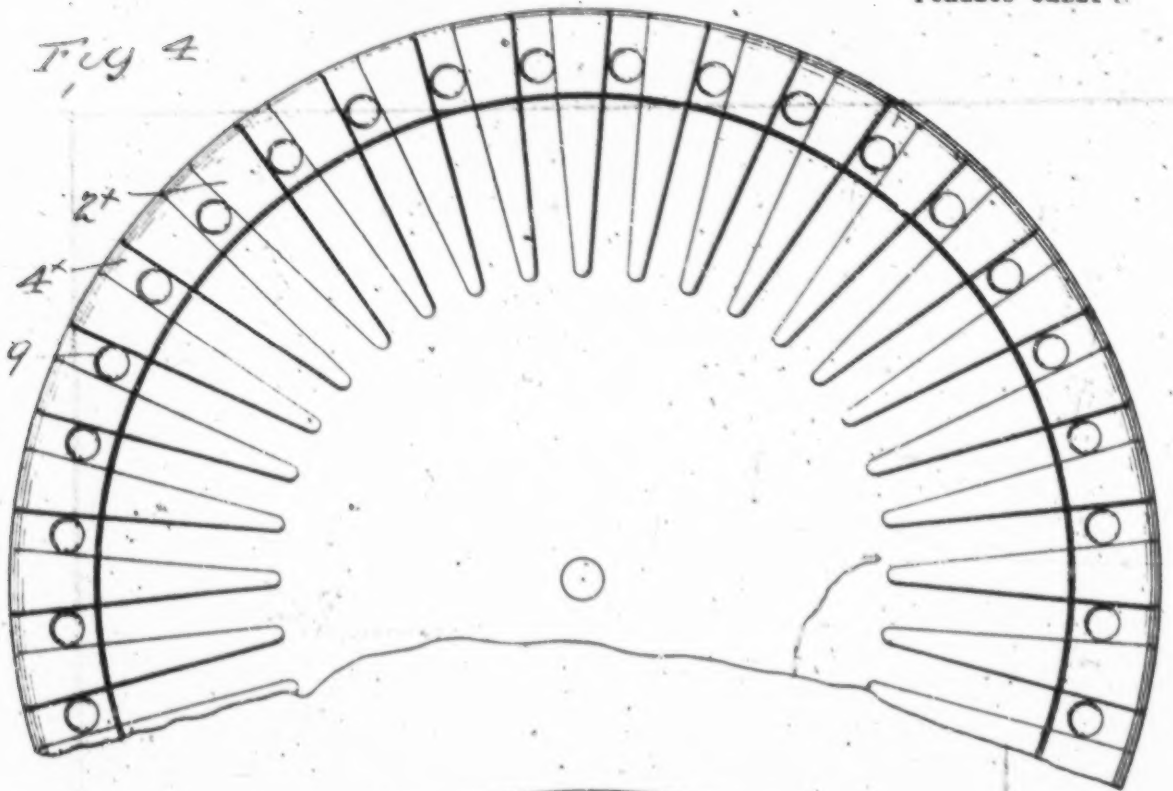
PATENTED MAY 19, 1908.

W. H. WHEELER.

APPARATUS FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED SEPT. 20, 1906. RENEWED OCT. 3, 1907.

4 SHEETS—SHEET 4.



Attest:
E. S. Mason
H. C. Curran

Inventor
WILLIAM H. WHEELER
by *Spencer Middleton, Attorney at Law*

UNITED STATES PATENT OFFICE

WILLIAM H. WHEELER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE CROWN CORK AND SEAL CO., OF BALTIMORE, MARYLAND, A CORPORATION.

APPARATUS FOR THE MANUFACTURE OF BOTTLE-CLOSURES.

No. 887,883.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed September 30, 1905, Serial No. 279,349. Renewed October 3, 1907. Serial No. 395,760.

To all whom it may concern:

Be it known that I, WILLIAM H. WHEELER, a citizen of the United States, residing at No. 1511 Guilford avenue, Baltimore, Maryland, have invented certain new and useful Improvements in Apparatus for the Manufacture of Bottle-Closures, of which the following is a specification.

My invention relates to the manufacture of bottle closures of the class known as crown cork sealing caps or closures, and it concerns particularly a machine for uniting the compressible or resilient packing material to the metallic cap.

In carrying out my invention I employ heat to soften or fuse the protecting and binding medium located between the packing or sealing gasket and the metal cap and after the parts are thoroughly heated they are allowed to cool or subjected to artificial cooling, and during this time they are subjected to pressure so as to firmly unite the packing or gasket to the cap by the binding and protecting medium. During the heating action of the parts they are not subjected to pressure or to any action which would tend to confine any moisture or air which may be in the material or in the pit holes or crevices thereof or pocketed between the members of the closure, but on the contrary, the assembled parts are left entirely free for the escape of any moisture or for the escape of the air in expanding. The advantages of this mode of procedure and the means for carrying out the same will be set forth hereinafter.

I aim among other things to provide a construction for the uniting of the assembled members of the closure which may be added to existing forms of assembling machines, occupying no more floor space than is necessary to accommodate the existing form of machine. I have sought also to provide a compact arrangement, but at the same time one in which the heating action on the members of any one closure may be continued a sufficiently long time to thoroughly soften the binding material and to drive out any moisture or air in the material or between the members which might interfere with the firm uniting of the parts.

The invention consists in the features, combination and arrangement of parts herein-

after described and particularly pointed out in the claims.

In the accompanying drawings,—Figure 1 is a front view of a machine embodying my invention. Fig. 2 is a plan view of the heating table or steam plate showing also in section the spiral arranged above the plate for controlling the movement of the closures thereover and further, showing the chill ring surrounding the heating plate or steam table upon which the closures, together with their contents, are subjected to compression while being cooled. Fig. 3 is a sectional view through the heating table or steam plate together with the chill ring and compressing device with the parts associated with the elements named. Fig. 4 is a plan view of a portion of the heating plate and table with part of the chill ring also shown. Fig. 5 is a plan view of the housing for the plungers with the cam carried thereby illustrated in dotted lines. Fig. 6 is a sectional detail view of the housing.

The invention is shown in connection with the type of apparatus for making composite closures such as is disclosed in Letters Patent of the United States, granted to me August 29, 1905, #798549. In said apparatus the metallic caps, the collets of paraffin paper and the cork disks are assembled and are subjected to the action of suitable die mechanism which presses the component parts intimately together, compressing the sealing disk and mechanically uniting the parts by slightly contracting the vertical wall of the metallic cap or crown or by slightly reducing the diameter of the crown so as to cause it to grip and hold the cork or sealing disk in place therein. In the machine described in the said patent, after the parts have been assembled and united mechanically, as just described, they are discharged from the apparatus, but my present improvement contemplates uniting the metallic cap with its compressible contents or packing by fusing the interposed material, such for instance as the collet described, and subjecting the parts to pressure while cooling and while the binding or sealing material is hardening.

It is thought to be unnecessary to describe the assembling mechanism and the die mechanism as these parts are fully disclosed

in the patent referred to. After leaving the die mechanism the composite closure is discharged into a chute 1, Fig. 1, which directs the closure onto a heating table or steam plate 2. The cap as discharged upon this table is in inverted position resting with what is actually its top side on the table.

The heating table or steam plate is rotated, as will be hereinafter described, and it is provided with a series of ribs 3 of wedge shape, that is, increasing in width outwardly so as to provide a series of channels or grooves 4, between them which grooves are of equal width throughout their extent and are adapted to receive the closures or caps in inverted position to direct them to the outer edge of the table.

The closures as they are discharged from the end of the chute 1 enter between the ribs 3 and in position to be acted on by the downwardly projecting wells or ribs 5 of a plate 6, which is supported in fixed position as will be hereinafter described.

The walls 5 extend spirally and by acting upon the upturned flanges of the closure as the same is carried around by the movement of the heating plate, they cause the closures to move radially outward through the grooves or channels 4. During this outward movement the closures are subjected to heat from the heating table which being transmitted through the metal of the cap, directly in contact with the heating table, causes the binding and protecting material which is interposed between the compressible packing of cork or other material and the cap to be fused for the purpose of uniting the compressible packing with the cap and for other purposes as fully set forth in the Letters Patent of the United States #792284, granted June 13, 1905, to William Painter.

Surrounding the steam plate or heating table and moving therewith is arranged a chill ring 2*, which is ribbed and grooved to form continuations of the ribs and grooves of the steam or heating table, the said chill ring being secured to the heating table by screws 7, Fig. 3, with asbestos packing 8 interposed to prevent the transmission of heat to the chill ring. This ring is subjected to cooling influences, as will be hereinafter described, and it is provided with a series of depressions 9, one in each of the grooves 4* which form continuations of the groove 4 of the heating table. These depressions are adapted to receive the closures and form a centering recess for the same to aid in holding the closure in place during the cooling of the parts and while they are subjected to pressure.

It will be seen that the closures as they traverse the heating table are free, not being subjected to pressure, and they follow each other through the grooves 4 closely, and during this time they are subjected to the heat

from the heating table for which the spiral plate acts as a cover and serves to form, in connection with the surface of the heating table, a chamber in which the closures are subjected to the heat while free from pressure.

The spiral of the plate 6 continues to act on the closures until they are discharged at the point *a* Fig. 2 onto the chill ring, the spiral at this point having an abrupt outward bend in its walls and the depending wall having also a concentric portion 10, just beyond the point *a*, which by acting on the closure will move it into the depression 9. As soon as this takes place, and of course as soon as the metal cap of the closure contacts with the chill ring, the parts of the closure are subjected to the cooling action of the said chill ring, and while cooling is subjected to pressure. The pressure is exerted through a plunger, one for each of the depressions in the chill ring, said plungers 11 being guided in a casting of ring shape 12, having an inturned lower flange 13, and an inturned upper flange 14 through which flanges the plunger 11 is guided.

Each plunger is pressed normally downwardly by a spring 15 bearing upon the ring casting at the upper end and upon a collar 16 on the plunger at the lower end. Each plunger has an extension 17, carrying a roller 18, which is adapted to cooperate with a cam 19 supported on a casting or ring 20, which is fixed to brackets 21, which brackets are supported from a stationary portion of the machine as will be hereinafter described.

The plunger carrying ring rotates with the steaming or heating table and the chill ring, being connected to the said ring by screws 22. The said plunger carrying ring or casting has a circular row of teeth 23 on its inner side meshing with a gear wheel 24 which is driven as will be hereinafter set forth.

The stationary cam 19 for controlling the vertical position of the plungers and their action on the closure extends only a short way about the circular casting 20 to which it is attached, and in the revolution of the steaming table, chill ring and plunger-carrying ring the plungers are raised just before they reach the point at which the closures are discharged from the spiral and from the heating table onto the chill ring, and this permits the proper positioning of the closure beneath the elevated plunger, and when this has taken place the roller of the elevated plunger runs off from the stationary cam 19, thus allowing the plunger to fall and engage the packing placing the same together with the other parts of the closure under compression, and in this condition, and while in contact with the chill ring, the closure makes very nearly full revolution, about the axis of the machine until the roller on the plunger again arrives

at the stationary cam 19 when the said plunger is again lifted and the closure with its parts united by the fusible material which has now been cooled and hardened, is discharged from the chill ring by coming in contact with the outwardly inclined edge 24 of the wing 25 forming a termination of the outer wall of the spiral, this wing with its inclined edge being located close to the point at which the closure is thrust upon the chill ring from the spiral so that nearly a complete revolution of the machine takes place during the time the closure is subjected to the cooling influences of the chill ring and to the pressure acting directly upon the compressible packing so that an effective hardening of the fusible substance will take place before the packing is released from its compressed condition, this being important in order to prevent the packing in resuming its uncompressed condition, from destroying the binding effect of the interposed fusible material.

Having described the general features and operation of the invention, certain details of construction and arrangement will be necessary to be disclosed in order to fully understand the same.

As will be seen from Fig. 1, the heating, cooling and pressure mechanism is arranged beneath the assembling and die mechanism of the machine above referred to and axially in relation thereto occupying no more floor space than is necessary for the said machine.

The heating table turns in a central bearing 26 of a frame or plate 27 which is supported by legs 28 from the floor. The heating table is formed in two parts joined by screws at 29 with interposed packing, the two parts forming a chamber into which steam is admitted by a pipe 30. The exhaust takes place through the hub 31 of the steam table and a pipe 32 extending into the said hub about the steam inlet pipe 30 from a casting 33 suitably supported on the floor and through which also the steam pipe enters. From this casting a discharge opening 35 directs the exhaust steam to any suitable point. A stuffing box is provided at 34 of any suitable construction.

The plate carrying the spiral and constituting a part of the heating chamber for the closures is provided with a covering of asbestos, as at 36, forming between itself and the plate an air space 37. This construction prevents the radiation of heat and asbestos may be applied at all necessary points to confine the heat to the heating chamber. It is also shown at 38 as a lining for the stationary frame or plate 27. This plate or frame is formed therewith an annular channeled portion made up of the inner and outer flanges 39, 40. In this channel is placed means for cooling the chill ring consisting of a pipe 41 for conveying the cooling fluid, such

as water or compressed air, the said pipe having jet openings 42 to direct the fluid to the underside of the chill ring at or near the center, on each side of which the chill ring is provided with depending flanges 43 to better control the cooling fluid and cause it to act more thoroughly upon the chill ring. The cooling pipe is carried in a trough 44 held within the annular channel of the plate or frame 27, the said trough receiving the fluid after acting upon the chill ring and conveying it to a suitable discharge, as for instance, the outlet pipe 45, Fig. 1. The annular channel has also located therein a ball bearing arrangement for the steam table. This consists of a ring 46 having a series of openings for anti-friction balls 47, which balls are borne upon by a ring 48 attached by screws 48^x to the steam table and said balls rest upon a ring 49 having a raceway therein for the balls, which ring is held adjustably by a screw 50 in a groove 51 of the plate or frame 27.

As before stated, the ring or casting for supporting the cam 19 and which also serves to house the rollers and plungers, is supported upon the brackets 21, and these brackets are secured by screws 52 to the outer side of the stationary plate or frame 27. These brackets 21 also have extensions 53 reaching down within the housing or ring 20, and by means of bolts 54 they support the spiral plate, before mentioned, in a stationary manner.

The housing 20 carrying the cam 19 for operating the plungers 11 is attached to the brackets 21 by the screws 59, 60. Anti-friction bearings are provided at the upper part of the rotating ring or casting 12 consisting of the anti-friction rollers 55 and 56, the latter of which turns on a part of the screw 57.

The connections for driving the heating table comprise besides the circular rack 23 and gear 24, the shaft 63, upon which said gear 24 is fixed, said shaft having its bearings in a bracket 64 secured to the main frame of the table, the gear 66 on said shaft meshing with a pinion 67 on the shaft 68, which forms a part of the transmitting connection of the assembling machine, carrying thereon the bevel gears 69 and 70 meshing respectively with the bevel gears 71, 72, whereby the feed plate 73 of the assembling machine is driven from the main shaft 74 through the gearing 75, 76.

From the above it will be seen that the assembled parts of the closure are subjected to heat while in the condition in which they leave the dies of the assembling machine. In this condition the packing while frictionally held by the walls of the cap, is free from pressure or from contact with any device which might act to prevent the escape of the air or moisture from the crevices or from the

body of the material itself within the cap. It is desirable to allow the air and moisture, if there be any, to escape freely before the parts are subjected to pressure, for if the pressure takes place before or simultaneously with the heating, any air contained in the pit holes or crevices of the packing or between the members of the closure or any moisture present on or about the members, may, by expanding, tend to separate the parts and prevent them from uniting perfectly under continued pressure. Further, it will be observed that as a heating medium, I use steam and this is applied to the table over whose imperforate surface the crowns pass. There is thus no direct contact of the heating medium with the crowns and no damage results thereto. During the application of the pressure the cap rests firmly upon the chill ring and the plunger engages the packing without requiring or causing any change in the shape of the flange of the cap, said plunger being free to rise from the cap at any time.

The heating table occupies the space within the standards or supporting legs of the apparatus and by reason of the spiral course over which the closures are made to pass, the heat continues to act on the closures for a long time so as to thoroughly soften the interposed binding material and prepare the parts for the cooling and pressing action.

It will be understood that the fundamental principle underlying the organization of elements above described may be embodied in apparatus of different form from that disclosed herein without departing from the broad scope of my invention.

The rotary table serves both as a heating means and also as a means for imparting movement to the closures, which movement is controlled by the spiral so that they traverse the table radially outward.

The assembling mechanism may be the same as that disclosed in the patent above referred to or any other desired form may be employed.

I do not limit myself to the precise form of the elements herein described.

I claim:—

1. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for heating the assembled members of the closures while free to allow the expanding air to escape, and means for pressing the parts together while cooling, substantially as described.

2. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for heating the assembled

members of the closures while free to allow the expanding air to escape, means for cooling the parts, and means for pressing the parts together while cooling, substantially as described.

3. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for heating the assembled members of the closures while free from pressure to allow the expanding air to escape, and means for pressing the parts together while cooling, substantially as described.

4. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, a plunger, a support on which the closure rests and between which and the plunger the closure is pressed, and means for heating the assembled parts of the closure for fusing the interposed material before the compression takes place said compression taking place during the cooling of the parts and the hardening of the interposed binding material, substantially as described.

5. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for supporting the closure in inverted position, means engaging the packing and the cap or metallic member to press them towards each other, and means for applying heat to fuse the said interposed binding material before the inverted closure is subjected to pressure and while it is free to allow the escape of the expanding air, substantially as described.

6. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for supporting the closure in inverted position, means engaging the packing and the cap or metallic member to press them towards each other, means for cooling the closure while subjected to pressure, and means for applying heat to fuse the said interposed binding material before the inverted closure is subjected to pressure and while it is free to allow the escape of the expanding air, substantially as described.

7. In an organization of the class described, means for pressing the parts of the closures together and means for heating the closures with their interposed fusible binding material, said heating means serving to move the closures to the pressing means, substantially as described.

8. In combination in apparatus of the character described, means for heating the closures with their interposed binding mate-

rial comprising a table, means for moving the closures outwardly over the said table while being heated, and means for receiving the outwardly moving closures and subjecting them to pressure to unite the parts, substantially as described.

9. In combination in apparatus of the character described, means for heating the closures with their interposed binding material comprising a table, means for moving the closures radially outwardly over the said table while being heated, and means for receiving the outwardly moving closures and subjecting them to pressure to unite the parts, substantially as described.

10. In combination in apparatus of the character described, means for heating the closures with their interposed binding material comprising a table, means for rotating said table, means for effecting the movement of the closures outwardly over the said table while being heated, and means for receiving the outwardly moving closures and subjecting them to pressure to unite the parts, substantially as described.

11. In combination, in apparatus of the character described, a table for supporting the closures, a guiding device over the table, one of said parts being movable to cause an outward movement of the closures in respect to the table, means for applying heat and means for receiving the closures when moved outward adapted to press the parts of the closure together, substantially as described.

12. In combination in an apparatus of the class described, a rotary table for supporting the closures, means over the said table for effecting in connection with the movement of the said table an outward passage of the closures over the table, means for applying heat, and means at the outer edge of the table for receiving and pressing the parts of the closures together, substantially as described.

13. In combination in an apparatus of the class described, a rotary table for supporting the closures, means over the said table for effecting in connection with the movement of the said table an outward passage of the closures over the table, means for applying heat and means adjacent the outer edge of the table for receiving and pressing the parts of the closures together, said pressing means revolving in unison with the table, substantially as described.

14. In combination in an apparatus of the class described, a rotary table for supporting the closures, means over the said table for effecting in connection with the movement of the said table an outward passage of the closures over the table, means for applying heat and means adjacent the outer edge of the table for receiving and pressing the parts of the closures together, said pressing means re-

volving in unison with the table and consisting of a circular series of plungers, substantially as described.

15. In apparatus of the class described, means for pressing the parts of the closures together, an imperforate table on which the closures rest, and means for applying heat to the said table, said pressing means being adapted to receive the closures from the said plate, substantially as described.

16. In apparatus of the class described, means for pressing the parts of the closures together, an imperforate table upon which the closures rest, means for applying heat to said table, and means for causing the closures to move over the said table outwardly to the pressing means, substantially as described.

17. In combination, in apparatus of the class described, means for pressing the parts of the closure together, a table having outwardly extending ways to direct the closures to the pressing means, means for causing the closures to pass outwardly through said ways, and means for applying heat, substantially as described.

18. In combination in apparatus of the class described, means for pressing the parts of the closure together, a table upon which the closures rest in inverted position, means for applying heat and a plate over the table forming between itself and the table a heating chamber, said pressing means receiving the closures from the table, substantially as described.

19. In combination in apparatus of the class described, means for pressing the parts of the closure together, a table upon which the closures rest in inverted position, means for applying heat and a plate over the table forming between itself and the table a heating chamber, and a spiral guide depending from said plate to engage the closures, said pressing means receiving the closures from the table, substantially as described.

20. In combination in apparatus of the class described, means for pressing the parts of the closures together, an imperforate table upon which the closures rest, a steam chamber beneath the said table for heating the same, said pressing means receiving the closures from said table, substantially as described.

21. In combination in apparatus of the class described, a rotary table having outwardly extending grooves or ways, a guide for causing the movement of the closures outwardly, and a series of plungers revolving in unison with the rotary table and receiving the closures from the rotary table, substantially as described.

22. In combination in apparatus of the class described, a series of plungers, means for previously heating and then delivering

the closures thereto, and means for positively discharging the closures from in front of the plungers, substantially as described.

23. In apparatus of the class described, a revolving series of plungers, means for previously heating and then delivering the closures thereto and means for discharging the closures from beneath the plungers at one point, substantially as described.

24. In apparatus of the class described, a revolving series of plungers, means for previously heating and then delivering the closures thereto and means for discharging the closures from beneath the plungers at one point, said means consisting of the incline in the path of movement of the closures, substantially as described.

25. In combination in apparatus of the class described, means for heating the closures while free from pressure, chilling and pressing means, and means whereby the closures are delivered from the heating means to the chilling and pressing means, substantially as described.

26. In combination in apparatus of the class described, means for heating the closures while free from pressure, chilling and pressing means for receiving the heated closures from the heating means, said pressing means acting to press the parts of the closure together between itself and the chilling means, substantially as described.

27. In combination in apparatus of the class described, means for heating the closures while free from pressure, a chill plate and plunger for receiving the heated closures for cooling and uniting the parts thereof, said plunger pressing the closures between itself and the chill plate, substantially as described.

28. In combination in apparatus of the class described, a table, means for applying heat, a chill ring surrounding the table to receive the heated closures therefrom and means for pressing the closures to unite the parts thereof while cooling on the chill ring, substantially as described.

29. In combination, in apparatus of the class described, a plate having outwardly extending ways or grooves, a chill ring surrounding the plate and having ways forming continuations of those of the heating plate, and plungers for pressing the closures while on the chill ring to unite the parts while cooling and during the hardening of the binding material, substantially as described.

30. In combination in apparatus of the class described, a rotary table, means for applying heat, means for causing the closures to move over the surface of said table outwardly, a chill ring surrounding and revolving with the said table and receiving the heated closures therefrom, and means for pressing the closures to unite the parts there-

of while cooling upon the chill ring, substantially as described.

31. In combination in apparatus of the class described, a rotary table, a concentric chill ring, said table and ring having their surfaces in the same plane, means for delivering the closures from the table onto the chill ring, and means for pressing the closures on said chill ring, substantially as described.

32. In combination in apparatus of the class described, a rotary table, a concentric chill ring, means below the table and ring for heating and chilling the same respectively, means whereby the closures are delivered from the heated table to the chill ring and means for pressing the closures while on the chill ring to unite the parts thereof, substantially as described.

33. In combination in apparatus of the class described, means for heating the closures while free from pressure, a chill support having a depression to receive the closures, means for moving the closures into said depressions, and means for pressing the closures while in said depressions, substantially as described.

34. In combination in apparatus of the class described, a heating table, a chill ring surrounding the same, a series of plungers over the chill ring, means over the table for moving the closures outwardly onto the chill ring and for centering the same beneath the plungers, substantially as described.

35. In combination in apparatus of the class described, a heating table, a chill ring surrounding the same, a series of plungers over the chill ring, means over the table for moving the closures outwardly onto the chill ring and for centering the same beneath the plungers, said heating table, chill ring and series of plungers having revolving movement and means at one point for discharging the closure from the chill ring after being pressed to unite the parts of said closure, substantially as described.

36. In combination in apparatus of the class described, a rotary heating table, a chill ring surrounding the same and rotating therewith, a series of plungers rotating with the chill ring, means for delivering the closures from the heating table onto the chill ring, means for discharging the closures after being pressed to unite their parts, said discharge taking place at a point adjacent the delivery point of the closures onto the chill ring, means for lifting the plungers at the discharge point, and means for lowering them at the delivery point and holding them lowered during the greater portion of the revolution of the parts, substantially as described.

37. In combination with the assembling machine, apparatus for uniting the parts of the closures and means for directing the

5 closures from the assembling machine to the said uniting apparatus, said assembling machine being superimposed in relation to the uniting apparatus, substantially as described.

38. In combination in apparatus of the class described, the table for supporting the closures, heating means, a spiral guide over said table and means for receiving the clo-

sure from the said table to press them and to unite the parts, substantially as described.

In testimony whereof, I affix my signature in presence of two witnesses.

WILLIAM H. WHEELER.

Witnesses:

HOWARD D. ADAMS,
JOHN BLACK.

MACHINE FOR MAKING CLOSURES FOR BOTTLES AND THE LIKE.

APPLICATION FILED MAY 24, 1905. RENEWED OCT. 3, 1907.

2 SHEETS—SHEET 1.

Fig. 1.

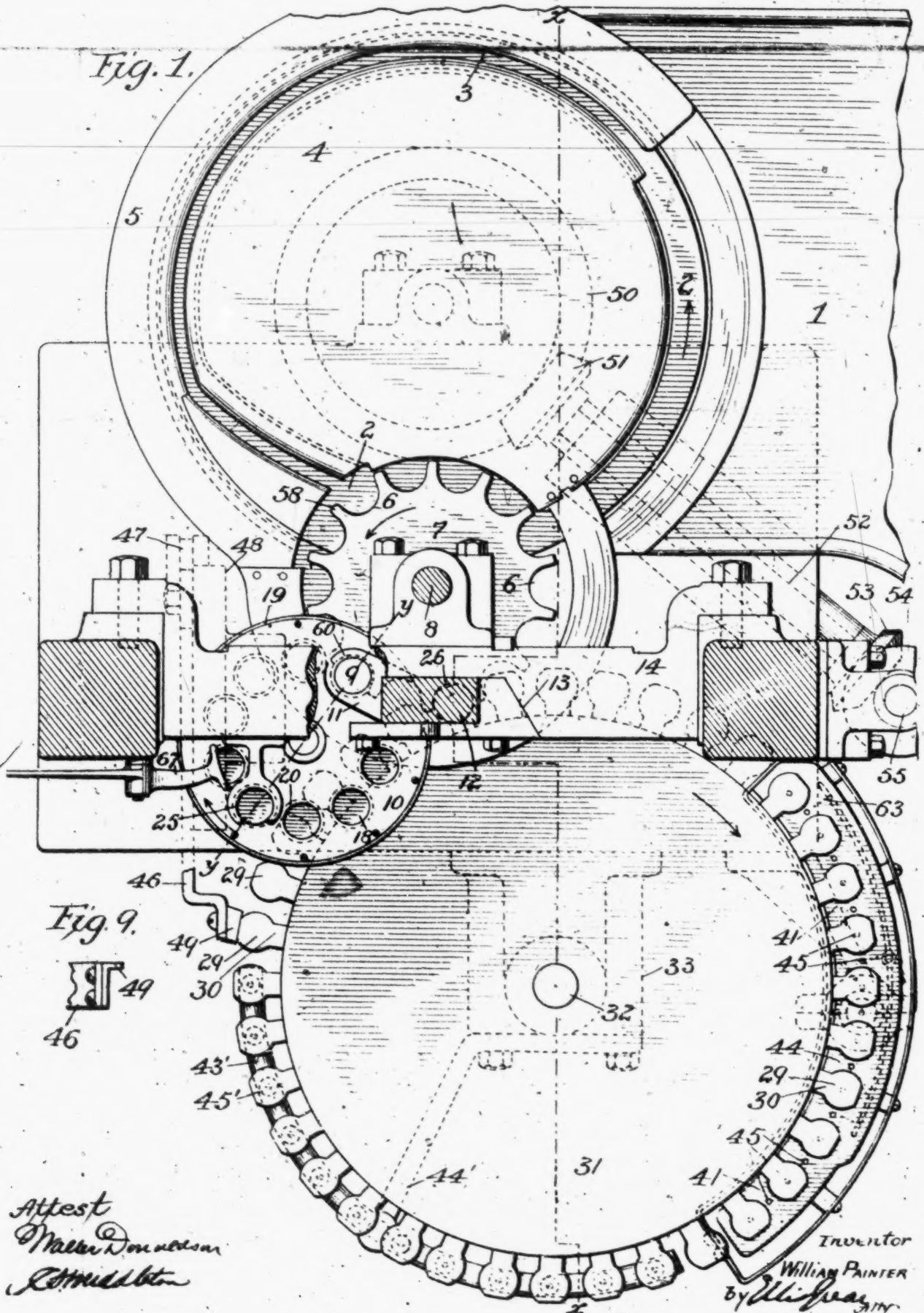


Fig. 9.

Attest
 Walter Donaldson
 R. Middleton

INVENTOR

WILLIAM PAINTER

By *W. H. Gray* ATTORNEY

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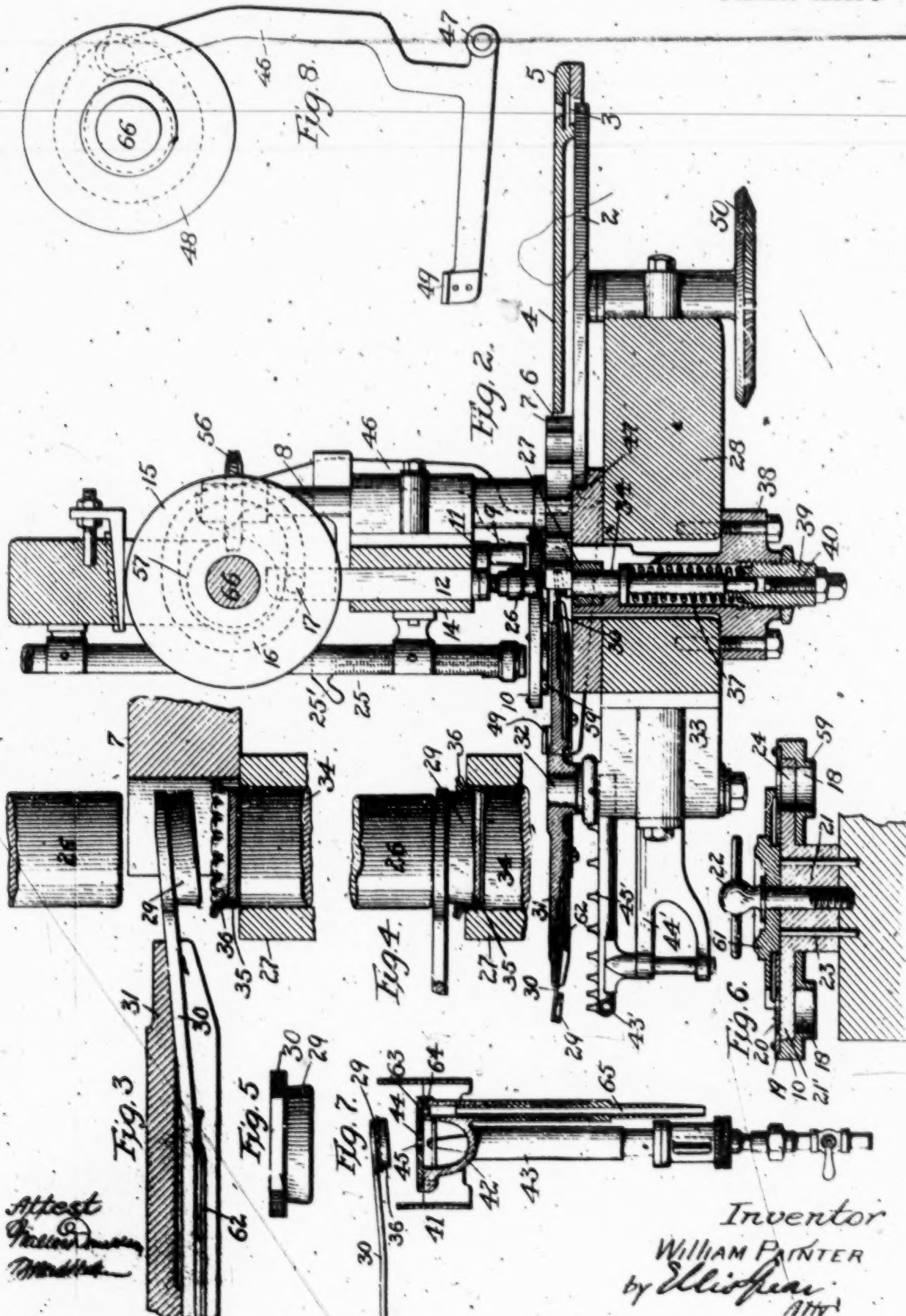
W. PAINTER.

PATENTED MAY 19, 1908.

MACHINE FOR MAKING CLOSURES FOR BOTTLES AND THE LIKE.

APPLICATION FILED MAY 24, 1905. RENEWED, OCT. 3, 1907.

2 SHEETS—SHEET 2.



Attest
Wm. Painter
Wm. Painter

Inventor
 WILLIAM PAINTER
 by *Wm. Painter*
 ATTORNEY

UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND, ASSIGNOR TO CROWN CORK AND SEAL COMPANY OF BALTIMORE CITY, OF BALTIMORE, MARYLAND.

MACHINE FOR MAKING CLOSURES FOR BOTTLES AND THE LIKE.

No. 887,838.

Specification of Letters Patent.

Patented May 19, 1908.

Application filed May 24, 1905, Serial No. 282,048. Renewed October 3, 1907. Serial No. 325,758.

To all whom it may concern:

Be it known that I, WILLIAM PAINTER, a citizen of the United States, residing at Baltimore, Maryland, have invented certain new and useful Improvements in Machines for Making Closures for Bottles and the Like, of which the following is a specification.

In certain applications for patent filed by me June 6, 1902, (Serial No. 110,535) and September 29, 1902, (Serial No. 125,180) I disclosed certain novel methods or processes of manufacturing bottle closures, wherein a special feature involves the interposition of a suitable fusible protecting and binding medium between a suitable metallic cap and a suitable sealing gasket or packing; then properly heating the cap, gasket and said medium, and meantime subjecting the whole to appropriate pressure, and while still under such pressure, cooling the completed closure.

My present application discloses certain novel mechanism, both in detail and in organization, as devised by me for the manufacture of bottle closures in harmony with my said novel method, and with special view to economically producing closures involving sundry novel characteristics of substantial value. A reliably firm union of the metal with the packing is assured, which contributes to substantial economy, because the packing, whether in the form of rings or disks, can be not only thinner, but of less diameter than heretofore, and such open pits or holes as are common to cork are well closed next to the metal, and the cork itself, although quite well condensed has highly effective resiliency. Liquid can seldom if ever reach back of the packing when the closure is in use on a bottle; and the central portion of a disk packing is so firmly held as to prevent undue inward bulging.

After a detailed description of my present invention in connection with the accompanying two sheets of drawings, the several features deemed novel will be duly specified in the several clauses of claim hereunto annexed, it being understood that the machine here illustrated is adapted to operate in connection with closures of the well known "Crown cork system."

Referring to the drawings, Figure 1 illustrates, mainly in plan view but partially in section an organization embodying my present invention. Fig. 2 is a vertical section of the parts shown in Fig. 1 on the irregular

line $x-x$ (but on a somewhat reduced scale) and also certain overlying parts, some in side or edge view, and others in section. Figs. 3 and 4, on an enlarged scale, and in two successive positions, illustrate an appropriate pressure block with a plunger and a die, which cooperate in effecting a temporary mechanical union of each presser block with a cap and its packing, and also the desired compression of the contents of the cap. Fig. 5 is a side view of a presser block and the end of the arm on which it is carried. Fig. 6, in section on line $y-y$ Fig. 1, illustrates a cork carrier and its hub or journal, an underlying portion of the frame of the machine, and an overlying plate or cover, not shown in Figs. 1 or 2. Fig. 7 illustrates in elevation and vertical cross section a heating apparatus, and also in side view an overlying presser block holding a filled closure in proper position to be heated. Fig. 8 illustrates in side view, a cam wheel and a bell crank lever carrying a clearer for detaching finished closures from the presser blocks. Fig. 9 is a detail view of the clearer for releasing caps from the presser blocks.

Believing it will be conducive to a prompt comprehension, to first indicate in a general way the salient parts of the machine and its mode of operation, I will state, specially referring to Fig. 1, that a fixed table 1 receives metal caps already provided with a suitable interior binding medium; an attendant arranges them open side up and slides them upon an exposed portion of a continuously revolving feed table 2, partially covered, as at 4 and 5, so as to afford near the periphery of the table a curved race-way or channel 3. The caps are frictionally carried through this channel until they reach its end at a circular space occupied by an intermittently operated star wheel 7, overlying a portion of the feed wheel, and having between its arms, semi-circular spaces or pockets 6 adapted to receive the caps one by one from the channel 3 and carry them in a circular path beneath an intermittently operated cork wheel or carrier 10. This carrier receives the packing from above regardless of its form, (i. e., sometimes ring shaped, but generally in disk form,) at 25 and delivers the packing at 9, where a cork plunger forces it downward into an underlying cap still within the custody of the star wheel 7, which then carries the filled caps one by one in a circular path beneath a

vertical presser block plunger 26 to, over, or into, a cooperating stationary die. An intermittently operated circular table, here termed a "timing" table, carries at its periphery a series of equidistant circular presser blocks 29 on the under sides of spring controlled radial arms 30, so that when a cap with its packing stops at the die and plunger 26, the latter will force the presser block into the cap, upon the packing, and carry the cap into the die until appropriate pressure has been assured. The die being of slightly less diameter than the caps, the flange of each is peripherally reduced and made to tightly engage with a presser block, and when released from the die, it is carried by the presser block with the binding medium and packing more or less heavily compressed, because of the firm (but temporary) mechanical union of the cap and presser block. The timing table by its intermittent movement first presents each presser block and the closure thereon to a heating apparatus at 41, for fusing the binding medium, and from thence, to the cooling apparatus at 43, and after having been properly cooled and the binding medium hardened, the finished closures or "crowns" are automatically released from the presser blocks by a clearer at 49.

Now as to a more specific description, it will be seen in Figs. 1 and 2 that the feed table 1 is continuously rotated by way of a vertical shaft 55, bevel gears 54 and 53, a horizontal shaft 52, bevel gear 51, and an overlying horizontal bevel gear 50 on a spindle pendent from the table and carried in a hanger at a portion 47 of the frame. The central cover 4 of the table, and the curved cover plate 5 with the intervening channel 3 have already been referred to. For working upon plain "crowns" the surface of the table may be of metal, hard paper, or wood, but for decorated crowns it will sometimes be desirable to have a softer covering, such as leather, to avoid scratching the decorations.

The star wheel 7 has multiple functions, and hence it is difficult to specially designate it in harmony with its duties. It not only takes unfilled caps one by one from the feed table and carries them to the cork feeder 10, but it also operates with its teeth 58 as a sprocket or gear in driving said feeder, step by step, and still further in like manner with its pockets 6 delivers filled caps to the die, and drives the timing table. The star wheel shaft 8 is intermittently driven by its worm gear 56, actuated from the adjacent continuously driven shaft 66, by means of a cam 57 having a spine or worm which operatively engages with the worm gear long enough to impart required movement to the star wheel, said spine being so shaped, (i. e., straight and curved,) as to afford the required rest during the remainder of its own rotation in a manner well known. These parts are similar

to those described in Letters Patent of the United States granted to Wm. H. Wheeler 798549 August 29, 1905.

The cork wheel, or feeder 10, shown in section in Fig. 6, is horizontally journaled on top of a circular bearing plate 21', having a hub or post 21 mounted upon and doweled, as at 23, to a portion of the frame of the machine and held down by a clamp screw 22 which also controls a cover 61 which is not indicated in Figs. 1 and 2; and may or may not be used. The cork wheel is composed of a heavy bottom plate 19 provided with a rabbeted flange, and an attached thin top plate which rests upon the bearing plate 21'. This top plate is provided with an annular series of circular holes 20, which register with corresponding holes 18 in the bottom plate 19 whenever in the course of rotation they register with a similar single hole 24 in the bearing plate 21, at which point the cork plunger 9 performs its duty. Except at this one point, the bearing plate serves as the bottom for all the holes 20, and enables them to serve as pockets for packing disks delivered thereto from the overlying cork tube 25, Fig. 2. This cork tube is vertically slitted at one side and is provided with a weight 25' having a projected finger piece for enabling it to be lifted from the tube when a fresh supply of cork is needed, said weight assuring a proper delivery of corks from the bottom of the pile in the tube, one by one, into each pocket 20 as it passes below.

Adjacent to the tube 25 there is a hinged finger 67 connected with an electric signal (not shown) for announcing any failure of delivery of cork to a pocket, but this constitutes no part of my present invention. At each hole in the bottom plate, there is a pendent boss or flange 59, serving as a gear tooth for engagement by the star wheel as indicated at 60, Fig. 1.

The conveyer or timing table 31 is rotated step by step on its pintle 32 on a hanger 33 and is provided with a series of radial arms 30, strongly hinged, projecting from its periphery, and each normally maintained in an elevated inclined position by a spring 62. Each of said arms carries below its outer end a pendent presser block 29, frusto-conical in form, larger at its face than at the arm, and of appropriate size to properly enter a filled cap and bear upon the cork disk or packing and to be itself firmly engaged by the flange of the cap after the packing has been compressed, thus enabling the presser block to maintain desired pressure on the packing until the finished closure is finally released therefrom. As already indicated the presser block arms 30 also serve as teeth engaged by the star wheel in actuating the timing table.

The cork plunger 9 is mounted on a lateral arm 11 projecting from beneath a slide 12 (in guide bearing 13 on cross bar 14), which

also carries the presser block plunger 26, all simultaneously vertically reciprocated by means of a stud 17 in a cam groove 16 in a cam wheel 15 on the shaft 66, said groove being so shaped as to cause the plungers to operate when the cork wheel, the star wheel and the timing table are at rest.

The presser block plunger 26 coöperates with the underlying die 27 (on bed plate 28) containing a die block 34 which serves as a slidable bottom for the die, and has a pendent spindle 37 within a spiral spring having its thrust bearing at the top against a collar, and at the bottom on a tubular screw-threaded support or plug 39 (in a hanger 38,) which contains the lower end of the spindle and also an underlying stop screw 40.

It will now be obvious that the organization of the presser block plunger, the presser blocks with their arms, and the die, is such, that when a filled cap has been delivered to the die, as shown in Fig. 3 beneath a presser block, the plunger will descend, force the block into the cap, and drive it into the die and firmly lock the cap 35 to the block with the packing properly compressed, and that the extent of condensation can be predetermined by an adjustment of the stop screw upon which the block spindle abuts.

The spring in yielding, assures a gradual application of pressure, and in some cases it may be relied upon for limitation, but its prime function is to enable the die block to act as an ejector for promptly releasing a cap and presser block from the die, and it being adjustable its inevitable weakening can be compensated. The extent to which the cap may be forced into the die is also positively controlled by the stop screw 40, thus enabling variations as to the contraction of the flange of a cap and also as to the tenacity of its union with a presser block.

As to the heating apparatus 41, it is to be understood that it may be widely varied without departure from the main feature of my invention. The heat may be derived from electricity, steam, or combustion either within or flaming from the heater; but however heated the organization of the heater with the timing table should be such as to appropriately heat the caps on the loaded presser blocks during their progressive movement, and in each case appropriate to special conditions involved; as for instance, some packing and some form of binding medium, and some materials or compounds thereof, will require more heat than others, or less heat with varied extent of exposure, and plain crowns may be safely exposed to heating conditions which might be ruinous to decorated crowns.

As here shown, specially in Fig. 7, the heater 41 consists of a horizontal flat topped chamber 42 supplied with gas and air (on the Bunsen plan) by way of the vertical pipe

43 provided with a suitable sleeve for controlling the air mixture, and with a suitable cock for graduating the supply of gas or cutting it off. The flat burner top 44 has suitable jet apertures 45. A pilot burner (or ready lighter) 65 with its jets at 63 receives gaseous mixture from a small chamber 64 concentric with the main burner. For maintaining a proper control of the heat and the adjacent air currents induced thereby, the burner has adjacent vertical side walls which, while permitting more or less air to freely rise from below the burner, also guard against undue lateral disturbance as from drafts of air.

As to the cooling operation in the organization, it is to be understood that under some circumstances and with some materials requiring but little heat, it will only be necessary to provide for the transit of the heated closures beyond the heater for a long enough time to enable them to be cooled by the atmosphere at normal temperature before they are released from the presser blocks. For meeting all requirements however, an artificial cooling operation is important. The packing is quite heavily compressed, and air largely excluded from the cap, and hence with a heavy solid binding medium to be fused or softened, or one containing volatile matter, considerable heat would have been needed, and if such heat were not thereafter promptly checked or reduced, the packing or said medium or both, might be injured, and should the release of the closures from the presser blocks precede a proper hardening of the binding factor, and a proper cooling of the packing, the latter in expanding from a condensed condition might largely derange the union of metal and packing. As here shown, the cooler consists of a curved pipe 43' on an arm 44' and provided with vertical jet tubes 45' in the path traversed by the crown laden presser blocks. Air, preferably under considerable pressure, is delivered to the cooler, so that on emerging in small jets it will promptly expand and induce a low temperature while directly impinging against the crowns when at rest, as well as during their movement.

In view of the falling tendency of cold air, it will be found sometimes advisable to provide an additional set of cooling jets located above or at one side of the path for delivering air inwardly or downwardly upon the crowns and blocks, which latter are liable to get unduly heated. To guard against such undue heating, the presser blocks may be provided with cores of wood, or other good non conductor of heat, the rims being of hard metal sufficiently smooth and strong to withstand the heavy grasp of the cap flanges, and admit of ready release.

The releasing of the caps from the presser blocks may be variously effected without de-

parture from my invention. The clearer 49, as indicated in Figs. 8 and 9, is intermittingly actuated from the horizontal shaft 66 by a cam wheel 48, and a bell crank lever 46 pivoted at 47, the lever at its upper end having a roller stud within an appropriate cam groove, (shown in dotted lines,) assuring the proper vertical reciprocation of the clearer, which overlies the edge of a crown on any presser block standing at rest at the point of clearance.

Having thus described my invention I claim,

1. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing having a fusible material interposed between it and said metallic member, means for engaging the packing to press the same against the metallic member with the fusible material interposed, and means for subjecting said parts to a change in temperature, said change in temperature being maintained while the said packing is maintained under compression, substantially as described.

2. In an organization for uniting the metallic member of a bottle or like closure with its compressible packing with fusible material interposed, heating means and means for engaging the packing to hold it under compression while the closure is cooling, substantially as described.

3. In an organization for uniting the compressible packing with the metal caps of bottle closures, means for heating the metal caps with the contained packing and interposed fusible material, and means for subjecting the packing to compression, and during said compression subjecting the metal cap to a cooling action, substantially as described.

4. In an organization for making bottle closures of the cap variety, the combination, substantially as hereinbefore described, of means for automatically assembling the metal caps and packing, means for heating the caps, and means for subjecting the packing to pressure to hold it in proper position against the cap and the interposed fusible material while cooling, substantially as described.

5. In an organization for making bottle closures of the cap variety, the construction substantially as hereinbefore described, consisting in means for automatically assembling the caps, the packing and the interposed material, means for heating the parts to fuse the binding material, and means for holding the packing under pressure within the cap while the parts are cooling and the binding material is hardening, substantially as described.

6. In combination, means for heating the assembled closure members and means for pressing the said members together and holding the said members under this pressure and

while cooling, the said means of compression being movable to convey the closure while its members are maintained under pressure, substantially as described.

7. In an organization for making bottle closures of the cap variety, the combination substantially as hereinbefore described, of means for heating caps containing a compressible packing and an interposed binding medium, means for maintaining pressure thereon during the heating operation, said means entering the cap and engaging the compressible packing, and means for automatically controlling the caps during and after the heating operation.

8. In an organization of the character indicated, the combination substantially as hereinbefore described, of means for heating caps having compressible material therein, means for artificially cooling them, and means for maintaining the contents of the caps under compression during the heating and cooling operations.

9. In an organization for uniting the metallic member of a bottle or like closure with its packing, means for pressing the packing into said metallic member, and means for subjecting the said parts to heat while maintained under pressure, substantially as described.

10. In combination, means for pressing together the members of a bottle or like closure, means for first subjecting said members to heat while maintained under pressure and then to cooling influences while maintained under pressure, substantially as described.

11. In combination, means for pressing the members of a bottle or like closure together and for holding the said members under this pressure, means for heating the members while under said pressure, the said means for compression being movable to convey the closure while its members are maintained under pressure, substantially as described.

12. In combination, a heating apparatus, a conveyer having means for holding the members of a bottle closure together under pressure, said conveyer being arranged to carry the closure while its members are maintained under pressure to said heating apparatus and to carry the said members maintained under pressure away therefrom, substantially as described.

13. In combination, heating apparatus, a conveyer having means for holding the members of the closure together under pressure, said conveyer being arranged to carry the closure while its members are maintained under pressure to said heating apparatus and to carry the said members maintained under pressure away therefrom, and means for discharging the closure from the said conveyer, substantially as described.

14. In combination, a pressure plunger,

means for feeding the closures beneath the same to be pressed, and a movable pressure maintaining conveyer to carry the compressed closure from beneath the plunger while maintaining it under pressure, substantially as described.

15. In combination, a pressure plunger, means for feeding the closures beneath the same to be pressed, a conveying device movable beneath the plunger and a die for attaching the closures under pressure to said conveying device, substantially as described.

16. In combination, a pressure plunger, a conveying device provided with presser blocks arranged to move over the closure to be pressed and under the pressure plunger, and a die for crimping the flange of the closure to the presser blocks for attaching the same thereto and maintaining the members of the closure under pressure, substantially as described.

17. In combination, a pressure plunger, a conveying device movable beneath the same and over the closure to be pressed, said conveying device carrying the closure under pressure from beneath the pressure plunger, and a heating device to which the closure is conveyed while maintained under pressure, substantially as described.

18. In combination, a pressure plunger, a conveying device provided with frusto-conical presser blocks arranged to move beneath the pressure plunger and over the closures to be pressed and a die for crimping the flange of each closure on to a presser block, substantially as described.

19. In combination, a pressure plunger, a cooperating die having a spring controlled die block therein and a conveying device provided with a presser block, whereby said pressure block with a closure under pressure will be released from the die and carried away therefrom, substantially as described.

20. In combination, a pressure plunger, a star wheel having pockets or spaces between its arms for carrying crowns beneath the pressure plunger, a conveyer and presser blocks carried thereby to receive the crowns under pressure, the said conveyer being operated by the movements of the star wheel, substantially as described.

21. In combination, a pressure plunger, a

star wheel, a conveyer having pressure maintaining means, arms on the conveyer for holding said pressure maintaining means, said arms meshing with the pockets of the star wheel, substantially as described.

22. In combination, a die on which the closures are placed, and pressure maintaining means on to which the closure is pressed by the action of the die, to be held under pressure, substantially as described.

23. In combination, a presser block for holding a crown closure with its packing disk under pressure, and means for placing the crown under pressure thereon.

24. In combination, a presser block for holding a crown with its packing disk under pressure, and means for placing the crown thereon under pressure, consisting of a plunger and a die, substantially as described.

25. In combination, a presser block for holding a crown with its packing disk under pressure, a die and a plunger, said plunger and presser block being movable towards and from the die, substantially as described.

26. In combination, a presser block having a peripheral surface adapted to enable a crown to be gripped thereon under pressure, and means for connecting the crown with the presser block.

27. In combination, a device for holding a crown with its packing disk under pressure, and means for placing the crown with its disk carried by said holding device and maintaining the contents of the crown under pressure while uniting them, substantially as described.

28. A machine for making closures for bottles and the like, comprising means for uniting the crowns with their disks and for holding them under pressure during that operation.

29. A machine for making closures for bottles and the like comprising means for uniting the crowns with their packing disks and for conveying and holding them under pressure during the uniting operation.

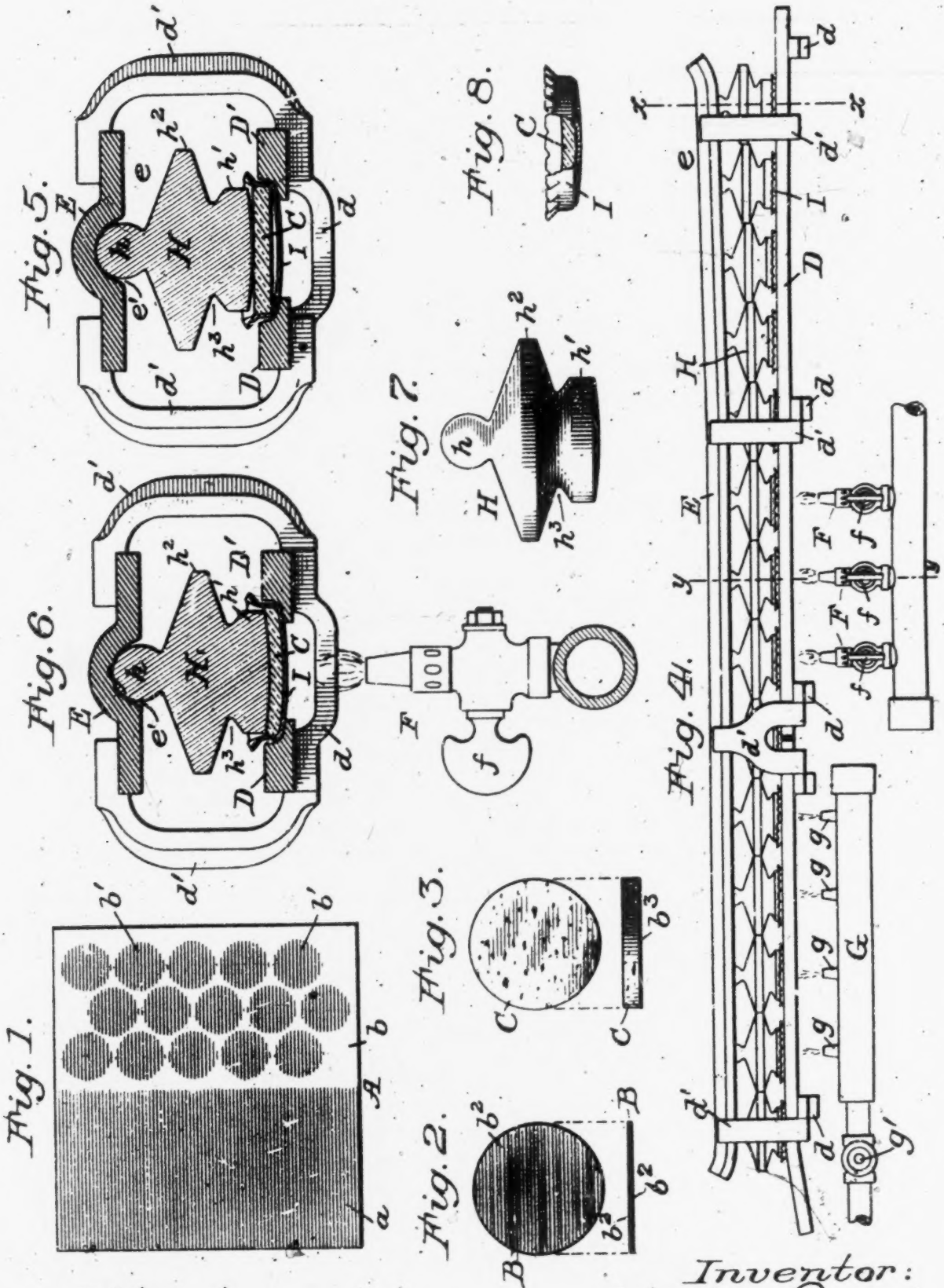
In testimony whereof, I affix my signature in presence of two witnesses.

WILLIAM PAINTER.

Witnesses:

HOWARD D. ADAMS,
WM. C. WOOD.

W. PAINTER.
METHOD OF MANUFACTURING BOTTLE CLOSURES.
APPLICATION FILED JUNE 6, 1902.



Attest:
Howell Bente
Attorney

Inventor:
William Painter,
By *W. G. M. M. M.*
Attorney

UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND, ASSIGNOR TO THE CROWN CORK AND SEAL COMPANY, OF BALTIMORE, MARYLAND, A CORPORATION OF MARYLAND.

METHOD OF MANUFACTURING BOTTLE-CLOSURES.

SPECIFICATION forming part of Letters Patent No. 792,284, dated June 13, 1905.

Application filed June 8, 1902. Serial No. 110,535.

To all whom it may concern:

Be it known that I, WILLIAM PAINTER, of the city of Baltimore, in the State of Maryland, have invented a certain new and useful Method or Process of Manufacturing Bottle-Closures, of which the following is a specification, taking in connection therewith the accompanying drawings, intended to contribute to a proper disclosure of my invention.

My present invention specially relates to the manufacture of such "bottle-closures" as are semimetallic and are accurately described (and classed) as "crown cork sealing-caps" or "closures," the same having been devised by me and originally disclosed in United States Letters Patent Nos. 468,226, 468,258, and 468,259, issued to me February 2, 1892.

While I am well aware that my invention, broadly considered, will afford substantial value in all operations wherein it is now or hereafter may prove to be specially desirable to adhesively unite any compressible and semiresilient material to metallic surfaces, I have developed said invention only in the manufacture of said semimetallic gas-tight bottle-closures, and hence I will confine this specification to a description of operations in that special art and duly restrict my claims thereto.

The principal objects sought through my present invention are to enable the production of bottle-closures of the aforesaid class in such a manner as will practically assure reliable results in bottling under gaseous pressure; also, to prevent bottled liquids from taint by contact with the metal of the cap and the incident corrosion of the metal; also, to assure a reliable union of the caps with the cooperating sealing or packing disks or gaskets therein, whether said packings or gaskets be in the form of disks or annular and whether composed of cork or any suitable substitute therefor, and also to enable the production of such closures with uniformity in greater perfection and with greater facility and at a cost substantially below that involved in any prior method practiced by or known to me.

Broadly stated, my novel method or process consists, first, in interposing a suitable

fusible protecting and binding medium between the packing or sealing disks or gaskets and the coincident inner surfaces of the metal cooperating therewith and of which the crown-caps are composed; secondly, while the caps, disks, and fusible binding medium are properly heated for fusing said medium, subjecting the whole to appropriate pressure, and, thirdly, while still heated and the packing held under controlling pressure hardening the binding medium or permitting it to harden by cooling it, the disk, and cap. Inasmuch as the slow cooling of these parts precludes many of the valuable economic advantages accruing from hardening the fused medium as promptly as possible, one feature of my invention consists (in this final step) in subjecting the cap, disk, and fused binding medium to artificial cooling influences for promptly cooling them while under controlling pressure.

Referring to the drawings, Figure 1 illustrates the surface of a piece of sheet metal, to one portion of which the binding and protecting medium has been applied as a surface coating, another portion having said medium applied thereto in circular spots. Fig. 2, in side and edge views, illustrates a paper collet charged with said binding and protecting medium. Fig. 3, in side and edge views, illustrates a packing-disk. Fig. 4, in side view, illustrates a raceway in which the caps, disks, and binding medium are suitably compacted, maintained under pressure, heated, and cooled, all during a progressive movement. Fig. 5 is a cross-section of the compressing end or part of the raceway on line *xx* with a cap, disk, and presser-block in section, as when entering the raceway. Fig. 6 is a similar cross-section of the pressure-maintaining portion of the raceway on line *yy* and showing a cap and disk in section over the heater. Fig. 7 is a side view of one of the presser-blocks; and Fig. 8 illustrates in edge view, partly in section, a finished bottle-sealing closure.

In the clause broadly describing the first step in my method or process I have employed the word "interposing," meaning thereby

that it is immaterial for the purposes of this invention in what manner the fusible protecting and adhesive medium is or may be applied or interposed between the packing-disks and the metallic surfaces where it is to perform its intended functions—as, for instance, I have applied said medium to the sheets of tin from which metal is initially cut and formed into caps, so that their interior surfaces are thereby well and properly coated. I have also applied the medium to such sheets in circular spots at those points at which the initial cuts are to be made; also applied the said medium to the interior of formed caps; also interposed paper collets well charged with the medium; also applied said medium to the inner or rear surfaces of the cork disks, gaskets, or packing. In these so far recited interpositions said medium has been in the form of solution well dried after application. Outside of solutions I have further applied said medium in a pulverulent form, dusted upon the interior surfaces of the caps, which are then ready to receive their sealing-gaskets, and, still further, said medium in the form of a film cut in circular or other shapes and interposed between the metal surfaces and the gaskets. It will now be evident that whether the caps are “born” (as indicated) with the fusible protecting and adhesive medium therein or said medium be afterward applied and so that it may perform its complex functions the first step in my method or process will be involved in the appropriate assemblage of the caps, fusible medium, and sealing disks or gaskets. The best results thus far attained by me have accrued from the use of gum-shellac in alcoholic solution, it being understood that one, two, or more of the stated interpositions may be employed, according to the exigencies involved—as, for instance, the greater the corrosive tendency of a bottled liquid the greater the need for extra protection of the interior surface of the caps against possible contact of such liquid, and the same or similar extra protection should be provided for liquids containing a high percentage of alcohol, which is a solvent of the preferred protecting medium. Special protection will be effective, for instance, by a direct coating on the metal, and in addition by way of the collet, and even still further with the coating on the disk or packing. The variations in quantity of the protecting medium thus interposed call for proportionate care in the application of the fusing heat during the second step of the process, as will be hereinafter more fully indicated.

Referring now to the drawings, in Fig. 1 a piece of sheet metal A is shown with one portion *a* thereof having its surface wholly coated with the protecting medium, and at another portion thereof, as at *b*, said medium is applied (as shown on a small scale) only in circular spots *b' b'*, &c., these being of proper

size and appropriately located to enable the desired metallic caps (such as shown in Fig. 8) to be cut and formed from the metal so coated. As between these two applications of such medium there is involved an economy in favor of the “spots” in avoidance of waste in the coating which goes with the waste metal when the sheet is wholly coated; but in both cases not only is the inner top surface of the cap coated, but also the inner surface of its flange. The paper collet B of Fig. 2 is not only usually filled or charged with said medium, but it may be and is sometimes coated on both of its faces *b' b'*. The packing-disk C of Fig. 3 has when needed its inner face *b'* coated with said medium.

I am aware that for the technical requirements of this specification there need be mentioned only a single type of suitable fusible protecting and binding medium; but with a view to an appropriate guidance to persons skilled in gas-tight bottle-closures and in the art of bottling I deem it proper to state that during my extended experience in this art I have used such gums as copal, sandarac, dammar, kauri, &c. I have, however, found no gum so reliably free from objectionable odor and taste and so safely worked in fusing as gum-shellac applied in alcoholic solution, although I find a close rival therewith in the best forms of Egyptian asphaltum in aromatic benzol solution.

Having proceeded as thus far described the assembled disks, caps, and binding medium, with or without the collets, are compressed and heat applied to the exterior surface of each cap in accordance with the second step in my process. The degree of compression may be varied according to specific requirements—as, for instance, pressure being always applied against the exposed or working face of the disk it should always be sufficient to cause the disk to closely conform to the sectional contour of the top of the cap and usually caused to lie snugly against the flange thereof. If the disks be of sliced cork (as distinguished from cork compound) and previously compressed for crushing hard spots therein, the pressure of this step need only be as already indicated; but if said disks should require “crushing” after the assemblage described then a heavier pressure would be appropriate. Such heavy pressure having been applied, it might or might not be further maintained, provided enough compression be continued to secure the effect of the lighter pressure, as hereinbefore indicated. The so assembled and compressed parts being then exposed to heat, it is immaterial in this step how the heat may be afforded or applied, provided a fairly perfect control of temperature is involved or an equivalent control of the time of exposure thereto. If unduly heated or for too long a time, the fusible medium may be caused to boil and to

exude toward the working face of the disk, as when much of said medium is employed, or with lesser quantity thereof to burn or coke it, and so render it useless, with a further liability of injury to the disks, and especially if the latter be of a composite type containing fusible material. I have employed with good results an electric heating-table which can be quite evenly maintained at a given temperature and upon which the closures may rest and be moved, the time or duration of exposure being relied upon for gaging as to safety. The simplest, safest, and most effective heating has, however, been attained by me by the use of suitable smokeless gas-flames, which being readily gaged as to volume enable an accurate and safe determination as to required time for exposure appropriate to the fusible medium, as well as the packing-disk, according to kind and quantity of fusible matter and variety of disk in each lot of closures. It will be obvious that in proceeding with this second step of my process it will be immaterial as to whether or not the heating and compression be initially simultaneous—as, for instance, the heating could be (and has been by me) begun before pressure was applied to the disks without materially affecting the results sought—although I deem it preferable to have pressure slightly precede the heating for better enabling the proper seating of the disks in the caps. During the compression of the disk the flange of the cap may be simultaneously slightly forced inwardly against the edge of the disk, as has been practiced by me; but it is to be understood that my present invention does not depend upon any accompanying mechanical action upon the cap-flange.

As hereinbefore indicated, the third or final step in my process involves, essentially, the hardening of the fusible medium while it, the packing-disk, and the cap are maintained under the appropriate pressure of the second step, and I will now refer to the drawings and describe the simple appliances selected for illustrating the operations involved in said second and third steps.

In Fig. 4 that which I have herein termed a "raceway" embodies two foot-rails D and D' in the same horizontal plane and separated by a space somewhat less than the least diameter of the caps to be supported thereon with tops downward. Above said rails is an overlying head-plate E, symmetrically grooved at its under side centrally and longitudinally and in line with the center line of the space between the foot-rails. The rails are coupled and braced at intervals by underlying bow-shaped tie-braces *d*, and the head-plate is supported by and coupled to the foot-rails by vertical outwardly-curved posts or ties *d'*. This head-plate E is horizontal and parallel with the rails except at its ends, both of which are inclined upwardly, the end at *e* being the entrance to the raceway. The groove *e'* in the

under side of the head-plate is concave in cross-section, as clearly indicated in Figs. 5 and 6. Beneath a portion of the raceway, near its entrance, is a suitable gas-burner F, controlled by a suitable cock *f*, and beneath another portion, beyond the gas-burner, is an air-chamber G, provided with a series of small vertical jet-pipes *g*, through which air is delivered upwardly after having been previously compressed and cooled by well-known means, which it is deemed unnecessary for the purposes of this specification to show or particularly describe. The delivery of the air through the jet-pipes is controlled by a cock *g'*. With this raceway a set of press-blocks H (in a desirable form) are employed, each having a globular head *h*, (for properly occupying and sliding in the groove *e'*.) a circular base *h'*, (about as large as a packing-disk,) an enlarged contact-rim *h''*, and a groove *h'''* between said rim and base, as shown in Figs. 5, 6, and 7. The height of each of these blocks H is so proportioned that when placed upon a disk packing C, within a metal cap I, the whole will freely enter the raceway at the entrance *e*, as shown in section in Fig. 5, and so that when the block, cap, and disk are moved together inwardly (as by pushing pressure at or near the groove *h'''*) the inclined plane of the head-plate will cause the compression of the packing to a desired or proper degree upon the entrance of the parts to the straight or pressure-maintaining portion of the raceway, as indicated in the sectional view Fig. 6, where the heat from the burner is applied to the adjacent surface of the top of the cap. If, then, a second block, disk, and cap be entered and forced along into the raceway, the first will be moved before it, as by contact of the rims of the blocks (or be separately pushed along, as by a forked rod applied at the groove) until said first cap will overlie the cooling-jets *g*, at which the escaping air, by prompt expansion, will afford a low temperature, and so on, it being understood that after passing the air-jets the finished closures and blocks drop freely from the raceway because of its vertically-enlarged exit. It should be also understood that in proportion to the speed at which the raceway is supplied with caps, &c., either the longitudinal areas of the heating and cooling appliances or their respective capacities should be varied, so that however rapid the movement of the caps may be the heating and the cooling capacities should be such as to surely and safely heat and then to effectually cool the heated parts and harden the fusible medium before release from pressure occurs, and as those capacities are controllable they may be gaged to the limits which experience in working would show to be needed with each lot of caps. Now, referring back to the second step, it will be seen that it terminates with the release of the cap, &c., from the fusing operation at the heater

and that if the raceway was long enough (and there were no air-jets) the caps and blocks could be moved along (as others entered) and so kept under pressure until sufficient time had elapsed for the prevailing temperature of an average factory to assist in cooling of the cap and disk and hardening the fused medium. It will, however, be obvious that with the variable temperature of a room, as well as of the variations in exterior normal temperature, there would be corresponding variations in time required for perfecting the operation and also that with the long raceway suggested a large number of press-blocks would be required. However slowly the hardening of the fused medium may be accomplished, if it be done under the controlling pressure indicated valuable results will accrue; but many of the important objects of my invention can only be secured by hardening the fusible medium by the exposure of the assembled heated parts under pressure to artificial cooling influences, and hence an appropriate clause of claim will be presented for securing that portion of my invention. The packing-disks necessarily become heated and being slow to absorb heat are equally slow in releasing it, and the disks are liable to be injured from undue heating. As heat can only be applied to the fusible material and the disk by way of the metal cap, it follows that radiation of heat in cooling the medium, the disk, and cap must be mainly backward through the metal. The compressed disk and the imposed press-block afford little or no path for the escape of heat in that direction, and if the disk be released from pressure while still hot the controlling effect of the binding medium could not be assured, and a hot disk in seeking to assert its natural resiliency after compression could not be so thoroughly under control as when the disk, cap, and the interposed medium are all well cooled under appropriate pressure.

Various artificial cooling influences may be employed without departure from my invention—as, for instance, a cooling-table containing a refrigerant, as the opposite of the electric heating-table hereinbefore referred to, or by inclosing a considerable portion of a raceway within a conduit jacketed for the circulation of a refrigerant or cooling medium; but the most convenient, reliable, and readily-controllable cooling influence known to me is afforded by the jets of compressed air. The objects sought by me by the employment of artificial means for cooling the assembled parts and hardening the fusible medium are to accelerate production; to secure practical uniformity in the finished product; a complete “fixing” or setting of the packing-disk in the form or condition induced by heat and pressure; to enable heat to be applied safely up to the last second of requirement, and then to end it abruptly, thus obviating liability of injury to the disk and of boiling, overheating,

and ruining the fusible medium; to assure a prompt contraction of the metal cap (after expansion by heat) before the packing is cooled and the fusible medium hardened; to reduce the number of press-blocks or equivalent pressing factors to a minimum, and to render it possible for the second and third steps of the process (including also the assembling of disks and caps) to be rapidly and perfectly executed by compact automatic mechanical organizations, because the heating and the cooling operations being each accurately controllable as to time each can be readily gaged for cooperation with mechanism which can be operated at any given speed consistent with the various requirements.

For indicating the status of my present invention as to novelty I will state that so far as my knowledge extends the nearest approaches thereto are to be found in disclosures made by me in my hereinbefore-mentioned Letters Patent No. 468,226, dated February 2, 1892. In my present operations the packing-disks are thicker than those indicated in said patent, as a precautionary measure of safety, and I employ therewith as a rule a paper collet as a suitable substitute reinforce for the thin fabric reinforce disclosed in my Letters Patent No. 468,259, the same having also been used by me as an effective form of the protecting-film described in said Patent No. 468,226, when said collet is charged with the fusible medium, as hereinbefore indicated. In said Patent No. 468,226 I also disclosed the use of the fusible protecting adhesive medium, such as shellac and Egyptian asphaltum, and also the compression of cork disks after application of heat for fusing said medium. Up to the time of making my present invention, however, the pressure has been promptly removed from the disks after they were compressed in the cap upon the shellac, and thereafter heated, and hence during the cooling of the cap and disk and the hardening of the shellac, even with thin disks, there was no such full control of the mass as would or could insure those desirable and valuable results in the finished product as are secured by maintaining the parts under pressure while heated and until they are cooled as in accordance with my present invention.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. In the manufacture of gas-tight bottle-closures composed in part of metal, the method or process which consists; first, in interposing a suitable fusible protecting and binding medium between the packing or sealing gasket and the coincident surfaces of the metal cooperating therewith; secondly, heating the metal, the gasket and the binding medium for properly fusing the latter, and in the meantime subjecting the whole to appropriate pressure; and thirdly, cooling the metal and avoiding injury to the gasket from undue heating

and hardening the fusible medium while maintaining said appropriate pressure, substantially as and for the purposes specified.

2. In the manufacture of semimetallic gas-tight bottle-closures, the method or process which consists: first, in interposing a suitable fusible medium between the packing or sealing gasket and the coincident surfaces of the metal cooperating therewith; secondly, heating the whole and properly fusing said medium, and in the meantime subjecting the whole to appropriate pressure; and thirdly, while still maintaining said pressure, promptly cooling the metal and avoiding injury to the gasket and hardening the fusible medium by artificial cooling influences, substantially as and for the purposes specified.

3. In the manufacture of semimetallic gas-tight bottle-closures, the method or process

which consists: first, in interposing a suitable fusible medium between the packing or sealing gasket and the coincident surface of the metal cooperating therewith; secondly, heating the whole and properly fusing said medium, and in the meantime subjecting the whole to compression; and thirdly, cooling the metal and avoiding undue heating of the gasket and hardening the fusible medium while said compression is maintained, substantially as described.

In testimony whereof I have hereunto signed my name in the presence of two subscribing witnesses.

WILLIAM PAINTER.

Witnesses:

C. E. TEALE,
GEO. E. TAYLOR.

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PAGE

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DEFENDANT'S EXHIBIT . . .

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

Paper 436

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records
of this office of the File Wrapper and Contents, in the
matter of the

Letters Patent of

Albin H. Warth, Assignor, by Mesne Assignments,
to Crown Cork & Seal Company, Inc.,

Number 1,788,260.


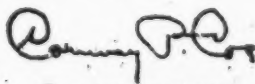
Granted January 6, 1931,

for

Improvement in Processes of Producing Closures.

IN TESTIMONY WHEREOF I have hereunto set my
hand and caused the seal of the Patent Office to be
affixed, at the City of Washington, this nineteenth
day of January, in the year of our Lord one
thousand nine hundred and thirty-four and of the
Independence of the United States of America the
one hundred and fifty-eighth.

Attest:


John E. Quinn
Chief of Division
Commissioner of Patents.1
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135

NUMBER (Series of 1925)

159743

1927

PATENT NO. 1788260

DATED

JAN 6 - 1935 - 46 (-)

(EX'R'S BOOK)

2-11-35

DIV. 50 2614

Name ALBIN H. BARTH

By *my name used* *of Baltimore City, new York* *for New York*
of Baltimore City, new York *for New York*
of Baltimore City, new York *for New York*

19
 of
 State of
 Invent

BALTIMORE

MARYLAND

PROCESS OF PRODUCING CLOSURES

ORIGINAL

RENEWED

APPLICATION FILED COMPLETE JAN 7, 1927

Petition, Specification,

Oath, First Fee \$20,

sheets Drawings,

Draw (1 sheet)

Nov 25-1926

Drawing Transferred to

Ser # 707995

Examined and passed for Issue Dec. 11, 1928

By *Branch* Exr. Div. 14

Notice of Allowance Dec. 11, 1928

Final Fee \$25 Dec 11, 1928

Attorney PHILIPP, SAWYER, RICE & KENNEDY 220 BROADWAY NEW YORK N Y

Associate Attorney

Authority *Superintendent* *Cushman* *Deputy* *Deputy*

No. of Claims Allowed 2 Print Claims 1

Title as Allowed Process of Producing Closures

Reexam'd and passed for Issue, 192

Exr. Div.

Notice of Allowance, 192

Final Fee, 192

By Commissioner

Associate Attorney

Authority *Superintendent* *Cushman* *Deputy* *Deputy*

No. of Claims Allowed 2 Print Claims 1

Title as Allowed Process of Producing Closures

in O. G. Class 113-0

Associate Attorney

Authority *Superintendent* *Cushman* *Deputy* *Deputy*

No. of Claims Allowed 2 Print Claims 1

Title as Allowed Process of Producing Closures

Associate Attorney

Division of App., filed
 PARTS OF APPLICATION FILED

1242

1486

ad
ch
JAN 7 1927

LAW OFFICES

PHILIPP, SAWYER, RICE & KENNEDY,

ST. PAUL BUILDING, 220 BROADWAY.

New York City, Jan. 6, 1926

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We send herewith petition, specification,
oath, and ncsheets of drawings in an ap-
plication of Albin H. Warth
for patent on improvement in
Process of Producing Closures
also check for \$20. in payment of first
Government fee.

Respectfully,

PHILIPP, SAWYER, RICE & KENNEDY,

Attorneys.

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6/

RECEIVED
JAN 27 1927
PATENT

PETITION.

159743

13879

The Honorable Commissioner of Patents:

Your petitioner Albin H. Warth a citizen
of the United States, residing at Baltimore, in the
State of Maryland
(whose Post-Office address is c/o Crown Cork & Seal Co., Baltimore, Md.)
prays that Letters Patent of the United States be granted to him
for the invention in a Process of Producing Closures

set forth in the annexed specification, and he hereby appoints Cleon J. Sawyer, James Q. Rice, James J. Kennedy and Philip B. Philipp (of the firm of Philipp, Sawyer, Rice & Kennedy, St. Paul Building, 220 Broadway, New York, P. O. Box 164, City Hall Station), his attorneys, with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Albin H. Warth

SPECIFICATION.

To all whom it may concern:

Be it known that I,
Albin H. Warth a citizen of the United States,
residing at Baltimore, County
State of Maryland
have invented certain new and useful improvements in a
Process of Producing Closures
fully described and represented in the following specification and the
accompanying drawings forming a part of the same.

7.

Insert C¹

¶ This invention relates to a method of producing closures of the type in which a sealing disk has a metal foil facing. *AC*

Part C
Insert C²

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks *non-absorbent, gas impervious and acid resistant* are given a facing of metal foil, e.g. tin foil, or aluminum foil. *AC* Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the ~~tin-foil~~ spot is given an intumed rim which is inserted in the slot. This method is objectionable because of its expense and because the ~~tin-foil~~ spots are apt to drop out. According to another method the ~~tin-foil~~ spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. *AC*

Insert C³

Part C

It is an object of the present invention to provide a method of producing spot-center crowns such that the ~~metal-foil~~ spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

Insert C⁴

According to the method of the present invention, the ⁽²⁾metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i.e. at room temperatures, and is ^{waterproof or} insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine to which is added 5% or less of a vegetable oil such as soya bean or china-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. ⁽³⁾

Insert C⁵
for C

Insert C⁶
for C

24

While the coating may be applied to the ~~metal foil~~ ^{material} in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. ⁽⁴⁾ In this connection it is noted that the ~~metal foil~~ spots may be conveniently assembled by feeding a strip of ~~metal foil~~ ^{material} over successive crown corks and cutting out a metal foil disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperatures it is more rapidly accomplished at a temperature of about 300° F. maintained for about 30 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. ⁽⁵⁾

Insert C⁷

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing disks. In

case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. ⁽²⁹⁾ This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork. ⁽³⁶⁾

The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congeling point of the coating material.

It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

Insert C⁸

Per C
Insert C⁹

2/20/24

Per C

Insert C¹⁰

(12)
X

l.c.
~~WHAT IS CLAIMED IS:~~

C"cl. 1

cancel
 1. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with a substance which is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, softening the coating, and pressing the coated metal foil against a sealing disk.

I
 2. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with an adhesive substance, cutting a facing spot from the metal foil, assembling the coated spot with a sealing disk, and applying heat and pressure to the assembled unit.

Per C.
 3. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with a substance which is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, cutting a facing spot from the coated metal foil, assembling the metal foil spot with a sealing disk, heating the assembled unit to soften the coating, and applying pressure to the assembled unit while so heated.

cancel
 4. The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with a substance which is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, assembling the coated metal foil with a sealing disk, heating the assembled unit to soften the coating, and applying pressure to the assembled unit while so heated.

Per C.
 5. The method of producing closures of the type in which a sealing disk has a metal foil facing, which com-

see B
 5. ~~comprising coating metal foil with a liquid substance at room temperatures, which substance is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, assembling the ~~coated metal foil~~ ^{metal foil} with a sealing disk, heating the assembled unit to soften the coating, and applying pressure to the assembled unit while so heated.~~

can be
 6. ~~The method of producing closures of the type in which a sealing disk has a metal foil facing, which comprises coating metal foil with a substance which is adhesive when soft and substantially devoid of tackiness when dry, drying the coating, assembling the coated metal foil with a cork sealing disk, heating the assembled unit to soften the coating, applying pressure to the assembled unit while so heated, and cooling the softened adhesive, under pressure, to the congealing point thereof.~~

II
 7. ~~A substance for use in uniting metal foil spots to cork disks characterized by being substantially devoid of tackiness when dry and by adhesive qualities when soft and being rendered soft by heat.~~

Chen
 8. ~~A substance for use in uniting metal foil spots to cork disks characterized by being substantially devoid of tackiness when dry and by adhesive qualities when soft and being rendered soft by heat and being insoluble in cold water.~~

He
 9. ~~A substance for use in uniting metal foil spots to cork disks, comprising a solution of damar gum and rosin in mineral spirit having a small amount of a vegetable oil.~~

H In testimony whereof, I have hereunto set my hand.

Albin H. Warth □

OATH

State of Maryland
City
County of Baltimore

ss.:

Albin H. Warth the above-named petitioner
being duly sworn, deposes and says that he is a citizen of the United
States, and resident of Baltimore, County
of Maryland; that
he verily believes himself to be the original, first, and sole inventor of
the improvements in a Process of Producing Closures

described and claimed in the annexed specification; that he does not know
and does not believe that the same was ever known or used before his inven-
tion or discovery thereof, or patented or described in any printed publi-
cation in any country before his invention or discovery thereof, or more
than two years prior to this application, or in public use or on sale in the
United States for more than two years prior to this application; that said
invention has not been patented in any country foreign to the United States
on an application filed by him or his legal representatives or assigns
more than twelve months prior to this application; and that no application
for patent on said improvements has been filed by him or his legal repre-
sentatives or assigns in any country foreign to the United States.

Subscribed and sworn to before me
this 23rd day of December, 1926.

Albin H. Warth

W. H. Stanley
Notary Public

50 Room 322

Address only
The Commissioner of Patents,
Washington, D. C.
and let me attend by name

VIII/R

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 2

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

Please find below a communication from the EXAMINER in
charge of this application

Thomas E. Robertson
Commissioner of Patents

MAILED
APR 16 1927

OFF 11-2000

Philipp, Sawyer, Rice & Kennedy,
220 Broadway,
New York, N. Y.

Applicant: A. H. Warth,

Ser. No. 159,743
Filed Jan. 7, 1927
For Process of Producing
Closures.

References made of record:

McManus,	1,213,926	Jan. 30, 1917	154-45.5
Okie,	1,565,027	Dec. 8, 1925	87-17

The claims are directed to independent invention. Division is required between claims 1-6 inclusive for the method of making the closure examinable and classifiable in Div. 50, Class 154 and claims 7-9 inclusive for the adhesive, examinable and classifiable in Div. 31, Class 87.

The references are merely illustrative and are cited after a cursory search.

E. L. Bean

///

Examiner.

1497

Div. 56

Room 311

Address only
"The Commissioner of Patents,
Washington, D. C."
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 5

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

MD/jmk

Please find below a communication from the EXAMINER in
charge of this application.

January 11, 1929

Thomas E. Robertson
Commissioner of Patents.

OFF 11-0032

Applicant: Albin H. Warth

Philipp, Sawyer, Rice
& Kennedy, 220 Broadway,
New York, N.Y.

Ser. No. 159,743
Filed Jan. 7, 1927
For Process of Producing
Closures

JAN 11 1929

Responsive to amendment filed March 13, 1928.

The following additional references are made of record:

Alberti	1,234,711	July 31, 1917	154-Bot. Class.
Koch	1,238,156	Aug. 28, 1917	"
Marsa	1,603,786	Oct. 19, 1926	"
French patent,	557,391	May 2, 1923	"

Claims 1-6 are rejected on any of the references cited
which disclose the coating of a metallic foil with an adhesive
which is rendered soft by heat, applying the coated metal to
cork and holding under pressure until the adhesive hardens.

A drawing is required. See rule 49. However, this need
not be furnished until some allowable matter is found in the
application.

MD

114

Albin H. Warth
Examined

1498



IN THE UNITED STATES PATENT OFFICE

In re application of
Albin H. Warth,
PROCESS OF PRODUCING
CLOSURES,
Serial No. 159,743,
Filed Jan. 7, 1927.

Div. 56 - Room 311

New York, June 26, 1929.

Hon. Commissioner of Patents,
Washington, D. C.

S i r :

In response to Official action of Jan. 11, 1929,
amendment is hereby made as follows:

Erase claims 1, 4 and 6.

In claim 5, at the end of line 5, insert:

cutting a facing spot from the coated foil.

Same claim, line 6, for "coated metal foil"
substitute - metal foil spot

R E M A R K S

By this amendment applicant has endeavored to reduce the number of claims. Reconsideration is requested as to the remaining claims.

Applicant has provided an efficient and beneficial method of producing spot center crowns, not disclosed or suggested in the references. In carrying out the invention, as defined by the claims, tin foil - either in strip or sheet form - is coated with a substance that is adhesive when soft and substantially devoid of tackiness when dry. The coating is dried, a "spot" is cut from the coated foil and assembled with a sealing disk. The assembled unit is then subjected to heat to soften the coating and to pressure to

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With the method described, the adhesive may be applied cold, i.e. at room temperatures. By coating a sheet or strip of foil and then cutting out spots, the necessity of applying an adhesive to individual crowns during assembly is avoided. The coated strip or sheet can be handled in assembly machines without difficulty because the coating when dried is devoid of tackiness. Moreover, the coating gives the foil a certain amount of body which facilitates handling.

The Examiner states that any of the references discloses the use of an adhesive rendered soft by heat and applying under pressure. But applicant is not claiming anything so broad as that. None of the references discloses coating foil with a substance of the characteristics mentioned, drying the coating to render it non-tacky, cutting a spot from the coated foil and assembling by heat and pressure.

Allowance is requested.

Respectfully submitted,

Alvin Schwartz
By *Philip Sauer*
John Kennedy

Attorneys.

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Div. 56 Room 311

Address only
"The Commissioner of Patents,
Washington, D. C."
and not as if cited by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 7

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

MD/ink

Please find below a communication from the EXAMINER in
charge of this application.

February 4, 1930

James E. Robertson
Commissioner of Patents.

GPO 11-2023

Applicant: Albin H. Warth

Philipp, Sawyer, Rice &
Kennedy, 220 Broadway
New York, N.Y.

Ser. No. 159,743
Filed Jan. 7, 1927
For Process of Producing
Closures

FEB 4 1930

Responsive to amendment filed June 27, 1929.

Claims 2, 3 and 5 are again rejected on the reference
to Morse who fully discloses applicant's process. Morse dis-
closes the application of adhesive in spots to a metallic
sheet, cutting 'spots' from the sheet and then drying the
adhesive. See page 1, lines 83-89. A sealing disk is then
applied to the coated spot, heat is applied to fuse the
cement (page 1, lines 100-105) and then pressure is applied.

Claims 2 reads directly on this reference and claims 3
and 5 differ only in sequence of the drying step. The appli-
cant dries first, then cuts, whereas, the patentee cuts and
dries. This mere change in sequence is a non-patentable
variation and devoid of invention.

As an issue has been reached, this rejection is now made
final.

J. H. [Signature]
Examiner.

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16-30 079690 - Check

Recd

U.S. PATENT OFFICE
JUL 18 1930

IN THE UNITED STATES PATENT OFFICE

In re application of
Albin H. Warth,
Serial No. 159,743,
Filed Jan. 7, 1927,
PROCESS OF PRODUCING
CLOSURES.

BEFORE THE BOARD OF APPEALS

*Appeal
8*

Hon. Commissioner of Patents,
Washington, D. C.

S i r :

I hereby appeal to the Board of Appeals from the decision of the Primary Examiner in the matter of my application above identified, which on the 4th day of February was finally rejected. The following are the points of the decision on which appeal is taken:

- (1) Because the Examiner erred in rejecting each of claims 2, 3 and 5 on the references and for the reasons of record.
- (2) Because the Examiner erred in not allowing each of said claims 2, 3 and 5.

An oral hearing is requested.

Check for appeal fee is enclosed.

Respectfully,

Albin H. Warth
By *Thos. S. Sauer & Co. Attorneys*

Attorneys.

Enclosure.


1500-2

Paper No. 9

MUI/jmk

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

July 24, 1930

In re: Application of)
Albin H. Warth)
Baltimore, Md)
For Process of Producing)
Closures)
Filed: Jan. 7, 1927)
Serial No. 159,743)

Before the
Board of Appeals
On Appeal

EXAMINER'S STATEMENT

Applicant has appealed from a final rejection of claims
2, 3 and 5, all in paper No. 1.

The reference relied upon is:

Masa 1,603,786 Oct. 19, 1926

The invention claimed consists of a method of producing
sealing disks for bottle caps in which metal foil is coated with
a cement which is sticky when soft or wet and devoid of tackiness
when dry, drying this coating, cutting a disk from the metal
foil, assembling the metal foil spot with a sealing disk, heating
the unit so as to soften the cement and applying pressure to the
unit while so heated.

This method has the advantage of providing a facing spot
which is free from tackiness and, therefore, easy to handle.
The method, however, is completely anticipated by Masa. This
patent ^{co} coats a metal sheet with a fusible cementing material
and then subjects the sheet to heat in an oven so as to evaporate
the solvent material of the cement. Disks suitable for crown cork

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Ser. No. 159,743. Sheet #2.

caps are then cut from this metal sheet, bent into the shape of a crown cap, a sealing disk of cork inserted and the unit heated in order to fuse the cementing material, the metal and the sealing disk then being united under pressure. The patentee states that the cement may be heated either before or after assembling the unit and the steps of the process are, therefore, substantially the same.

While the patentee applies cement to the crown cap itself and applicant applies cement to a facing disk to be inserted in a crown cap this is not believed to be a patentable difference since the result is the same and the patentee's process could just as readily be applied to the production of the closures shown by applicant, the steps being identical and the materials substantially the same.

Respectfully submitted,

W. Porter
Examiner, Div. 56.

amg

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WASHINGTON, D. C.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

#10.
Aug. 6, 1930

Serial /
(
Interference)

No. 159,743

Appeal received

A. H. Warth.

The date of hearing on this appeal can not be set prior to
Dec. 1, 1930.

Notice of the date of hearing will be mailed as soon as the
date is decided upon.

Thomas E. Robertson
Commissioner.

Messrs. Philipp, Sawyer, Rice & Kennedy,
220 Broadway,
New York, N.Y.

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October 25th 1930

IN THE UNITED STATES PATENT OFFICE

Name: Albin H. Warth

Serial No.: 159,743

Filing Date: January 7th, 1927

Crown Cork and Seal Company, Inc., assignee
of record of the entire right, title and interest in
the above entitled application,

hereby give

Messrs. Cushman, Bryant & Derby, a firm composed of
Arlon V. Cushman, Arthur L. Bryant and John J. Derby,
whose registry number is 7196 in

the above application as power to inspect the application
file in the Patent Office and make copies of all papers.

CROWN CORK & SEAL COMPANY, INC.

By

W. H. Susting
Vice President

1262

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ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

284-3

Serial No

135

Page No

12

Paper No.

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

WASHINGTON

November 17

, 1930

Sir:

The case of Albin H. Warth

Serial

)

(No. 159,743

, will be heard by the Board of

~~Substantive~~

Appeals on the 23rd day of December, 1930

1:30 P.M.

The hearings will commence at ~~9:30 A.M.~~ and as soon as the argument in one case is concluded the succeeding case will be taken up.

If any party, or his attorney, shall not appear when the case is called, his right to an oral hearing will be regarded as waived.

The time allowed for arguments is as follows:

Ex parte cases, thirty minutes;

Inter partes appeals: Interlocutory and final hearings when no testimony has been taken, thirty minutes each side; final hearing when testimony has been taken, one hour each side.

By special leave, obtained before the argument is commenced, the time may be extended.

The appellant shall have the right to open and conclude in inter partes cases, and in such cases a full and fair opening must be made.

Briefs in inter partes appeals must be filed in accordance with the provisions of Rules 144 and 163.

Respectfully,

Thomas E. Robertson

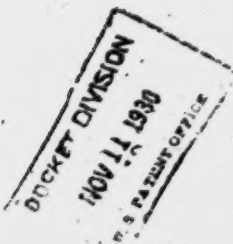
Commissioner of Patents.

To

To Philipp, Sawyer, Rice & Kennedy,
220 Broadway,
New York, N.Y.

1263

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Div 56 - #13
Now on appeal
to Board of Appeals

IN THE UNITED STATES PATENT OFFICE.

Inventor: Albin H. Warth,
Invention: Process of Producing Closures,
Serial No. 159,743,
Filed January 7, 1927.

POWER OF ATTORNEY.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

The Crown Cork & Seal Company, Inc., assignee of
the entire interest in the above entitled application,
heraby appoints, as its attorneys, with the usual powers,
Cushman, Bryant & Darby, a firm composed of Arlon V.
Cushman, Arthur L. Bryant and John J. Darby, (Reg. No.
7196); Washington Loan & Trust Building, Washington,
D. C.

All existing powers are hereby revoked.

Accepted
NOV 24 1930
J. E. Robertson
Commissioner

CROWN CORK & SEAL COMPANY, INC.
By *J. E. Robertson*
Vice President.

Dated:-

IN THE UNITED STATES PATENT OFFICE.

Albin H. Warth.

PROCESS OF PRODUCING CLOSURES,

Filed January 7, 1927,

Serial No. 159,743.



BEFORE THE BOARD OF APPEALS.

In view of the recent conferences with the Primary Examiner, from whom this case was appealed (Div. 56), appellant has submitted an amendment which is thought to place the case in condition for allowance.

This amendment bears the endorsement of the Examiner to the effect that it places the case, in his opinion, in condition for allowance. The single claim presented in the amendment has also been approved by the Primary Examiner in Division 15.

In view of the Examiner's endorsement of the proposed amendment, appellant consents to and requests (1) dismissal of the appeal, and (2) a recommendation by the Board that the Examiner enter the attached amendment and allow the application.

Respectfully,

Albin H. Warth.

By

A handwritten signature in dark ink, appearing to read "Albin H. Warth".
Attorneys.

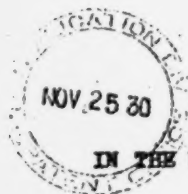
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November 25, 1930.



1265

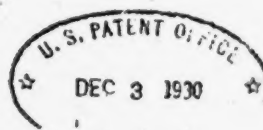
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IN THE UNITED STATES PATENT OFFICE

15/c + Supp Act

Albin H. Warth,
PROCESS OF PRODUCING CLOSURES,
Filed January 7, 1927,
Serial No. 159,743.



Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 1

C'
~~Line 3 after the period insert~~ This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

~~Line 7 before "facing" insert~~ --non-absorbent, gas impervious and acid resistant--.

C2
~~Line 8 after the period insert~~ Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing discs or spots upon the cushion material of crown caps.

~~Line 13 cancel "tin foil".~~

~~Line 15 cancel "tin foil".~~

~~Line 17 cancel "tin foil".~~

~~Line 24 after the period insert the following:~~

^{c³} For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shell itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

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It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

C³ Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

~~Line 27 cancel "metal foil".~~

Page 2

~~Line 2 before "metal" insert strip material~~
having a surface which is substantially non-absorbent and gas impervious, such as

~~Same line (2) after "foil" insert a comma.~~

~~Line 6 before "insoluble" insert --waterproof~~

or--

~~Line 13 after the period insert~~ This adhesive is waterproof and is not weakened by gases or acids, such

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c⁵ as are present in the bottle contents with which crown caps are usually employed.

✓ Line 15 cancel "metal foil" and substitute

--material--

c⁶ ✓ Line 17 after the period insert ✓ So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine. □

✓ Line 17 cancel "metal foil".

✓ Line 19 cancel "metal foil" and substitute

--material--

✓ Line 20 cancel "metal foil".

c⁷ ✓ Line 32 after the period insert ✓ Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive

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tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

Page 3

Line 8 after the period insert:

In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied.

Line 11 after the paragraph insert the following:

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for

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cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in

268 Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22

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of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 25, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

Page 3

Line 12 cancel "cooled" and substitute --permitted to cool--

Line 17 cancel the paragraph beginning "It may be desirable".

Page 4

After the last line insert the following:

~~H~~A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the

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labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

(X)

IN THE CLAIMS:

Cancel the claims and substitute:

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H. 07a

The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

C."

Oct 28

Please enter the accompanying sheet of drawings.

D-6.2

REMARKS

To the best of my knowledge and belief, the claim submitted by this amendment is patentable. The balance of the amendment cannot be presented for review.
J. H. Porter
Examiner
Dis 56

It is believed that the foregoing amendments place this case in condition for allowance, and that the Examiner will feel warranted in recommending to the Board of Appeals, that the amendment be entered and the new claims allowed.

With respect to the delay in presenting this amendment, a recent conference between present attorneys and the applicant made it apparent that the real problem which applicant has solved and the definite advance he has made over the prior art, are not set forth in the specification

with sufficient distinctness to cause the Examiner to appreciate the precise problem the applicant has solved and the importance of his contribution to the art. Immediately upon discovering this fact, applicant's attorneys took steps to obtain a conference with the Examiner and to present to him the additional information which, as now embodied in the specification, is thought to justify the allowance of protection. It is thought that these conclusions are borne out by the interview kindly granted the applicant and his counsel, and that in view of these facts the delay in presenting the amendment and claims may be properly excused. If the Examiner desires an affidavit explaining the reason for the delay in presenting claims of the character now submitted, it will be furnished.

The Examiner's attention is particularly directed to the additional matter inserted in the specification. This matter simply explains the relation of the present invention to the prior art and defines the characteristics of the material involved in the use of the method which make the method a very valuable advance over former practices.

The applicant does not claim to be the first to have used metallic foil; this material is simply one of numerous materials which have been used for years in the spotting or facing of caps. These cap facings or spots are employed in order to afford a non-absorbent, gas impervious and acid resistant surfacing for the cushion material which is used in crown caps. As the Examiner will, of course, appreciate, other materials have been used, such as paper suitably finished to impart these characteristics to the same.

At the time the applicant made the present invention, it was customary to "spot" by feeding the acid and gas resistant material in strip form, and also the adhesive tissue in strip form, and to simultaneously punch from the strips discs of the acid resistant material and of the adhesive tissue. Another practice was to deposit on the cushion material of the cap the cement or liquid adhesive, and then to apply the disc of acid resistant material. The use of this liquid made the process slow in view of the difficulties in applying the glue or paste. Moreover, the use of a separate strip of adhesive in tissue form was objectionable for various reasons, which are now fully explained in the specification. Briefly stated, these objections were:

FIRST - it was difficult to handle the adhesive in tissue form and breakage of the same made necessary the stopping of the cap machine.

SECOND - stretching or distortion of the tissue adhesive made it difficult to obtain exact registry of the tissue disc and acid-resistant material disc when the two were applied to a cap.

THIRD - due to drag in the cutting dies, it was not always possible to obtain exactly corresponding sizes of tissue and material discs, with the result that the entire bottom surface of the material disc was not always backed with adhesive and the material disc was not always united to the cushion throughout its entire edge.

FOURTH - the necessary thickness of the adhesive tissue resulted in expression of the same from beneath the facing when pressure is applied to the spot.

FIFTH - the handling of two strips of material retarded operation of the cap assembling machine.

SIXTH - the necessary thickness of the adhesive tissue made it difficult to obtain a firm bonding of the tissue and facing material throughout the face of the disc.

SEVENTH - after the punching operation the separate discs moved out of registration and resulted in a large proportion of defective caps.

These and other objections to the previously used processes have been overcome by the applicant. His invention involved, as a primary concept, the elimination of the use of separate strips in the cap assembly operation. As a secondary concept, it involved the provision of a unitary multi-layer strip with the layers bonded, one surface of this strip being a waterproof adhesive which will soften under the application of heat and pressure, and the other surface being acid resistant, gas impervious and non-absorbent. It has frequently been pointed out by the Courts that invention often consists in discovering what is the difficulty with existing structures or methods, and that this constitutes invention, although the means for overcoming these objections are comparatively simple. For example, Judge Hough said in the case of Kurtz et al. v. Belle Hat Lining Co., Inc. (C. C. A. 2nd Cir.) 230 Fed. 277 (at 281):

"Patentability has often been found 'in discovering what is the difficulty with an existing structure' and correcting the same, even though 'the means' are old and their mere 'adaptation to the new purposes involves no patentable novelty.' Miehle, etc., Co. v. Whitlock, 223 Fed. 647, 650, 139 C. C. A. 291. Hindsight, or wisdom after the fact, has always been looked upon with disfavor; e. g. Farles Co. v. Brown, 121 Fed. 547, 550, 57 C. C. A. 609."

The same Circuit Court of Appeals in the earlier case of Miehle Printing Press & Mfr. Co. v. Whitlock Printing Press Co., 223 F. R. 647, said:

"Patentable novelty is sometimes found in discovering what is the difficulty with an existing structure and what change in

its elements will correct the difficulty, even though the means for introducing that element into the combination are old and their adaptation to the new apparatus involves no patentable novelty".

In these decisions the Courts simply followed other decisions to the same effect, such as Patents Selling v. Dunn 204 Fed. 99; General Electric v. Hartman 187 Fed. 131; General Electric Co. v. Sangamo Electric Company (C. C. A. 7th) 174 Fed. 246. In the last case, the Court pointed out that there are two steps involved in an inventive act, namely (a) discerning in existing machines or processes some deficiency, and (b) pointing out the means to overcome the same. The Court said this in the following language:

"Invention, in the nature of improvements, is the double mental act of discerning in existing machines, processes, or articles, some deficiency and pointing out the means of overcoming it."

The applicant's invention, from the standpoint of conception, consisted in three steps. First, he perceived that the former practices of using (a) paste or glue, or (b) a separate strip of adhesive tissue, were cumbersome and objectionable. He saw the objections and set out to overcome them. The second step in his invention was to supply the medium and method by which these objections might be eliminated. In connection with the second step, he supplied a material of laminated character having (a) one exposed surface which is acid resistant and gas impervious, and (b) another exposed surface with a thin coating of waterproof adhesive which softens under the application of heat, but is normally hard, so that the material may be conveniently handled. Thirdly, he went a step further and provided a complete method which involves the use of this material in such a way that caps might be more economically

produced and without the defects of caps produced according to the earlier methods. The applicant's method has numerous advantages, including the following:

1. The cost of product of spot crowns is very materially decreased; in fact this invention alone was the main factor in reducing the cost of production of spot crowns sufficiently to make possible commercial production.
2. There is but a single strip to handle, instead of the two separate strips of the former method.
3. There is no need of applying paste or glue to the cushion material of each cap.
4. The simultaneous cutting of the adhesive and material discs from a single strip insures that the adhesive is coextensive in area with the material with the result that there is no possibility of gas or moisture entering between the spot material and the cushion layer around the edges of the spot.
5. The thinness of the adhesive layer avoids expression of the adhesive when pressure is applied to the spot.
6. There is no tendency for distortion or stretching of the adhesive layer relative to the material strip.
7. There is no possibility of breakage of a fragile adhesive tissue which results in stoppage of the machine.
8. It is possible to inspect the facing material as it is fed into the assembly machine to insure that the entire surface is coated with adhesive, which cannot be done when the separate strips are fed or when paste or glue is first applied to the cushion material. In other words, imperfectly faced caps are virtually eliminated. There is absolute registration of the edges of the material disc and adhesive disc which is difficult to obtain in the manufacture from separate strips.
9. The discs in united form may be fed into the cap in absolute registry and assembled by the cutting punch, due to the bonded relation of the two layers.
10. The heat and pressure necessary for uniting the facing to the cap may be applied substantially simultaneously with the punching and assembly operations without waiting for inspection, since there is no danger of the adhesive and material discs moving out of registry with one another; this permits an operation in which the punch used to cut the discs may also be employed to apply the pressure.

These and other advantages of applicant's invention

make the same, from a practical standpoint, a radical advance in the art. The Examiner will appreciate this from the fact that this method has been adopted by the Crown Cork & Seal Company, in lieu of formerly used methods of the nature disclosed in the references cited. This Company, as the Examiner is probably aware, is the largest manufacturer in the world of crown caps.

THE PRIOR ART.

In view of the amplified description of the invention now embodied in the specification, the Examiner will undoubtedly appreciate that the disclosure in the patent to Marsa (1,603,786) has nothing whatsoever to do with this invention. The patentee is dealing with the formation of the cap and the application of the cushion layer thereto. The amended specification points out that this step takes place before the application of the facing spot, and that in the manufacture of the cap with which applicant's method is employed, the Marsa method may also be utilized. But the method described in the patent applies to an altogether different step in the manufacture of the cap. The Examiner's attention is called to the fact that applicant's assignee controls the Marsa patent, since the assignee of that patent, New Process Cork Company has been consolidated with the assignee of the present case.

The Marsa patent is the only one of the references of record which has in any way been advanced by the Examiner as pertinent to applicant's disclosure, and, therefore, it seems unnecessary to discuss the other prior art in detail. McManus (1,213,926) does not show a strip having an exposed adhesive surface. It would be impossible to practice applicant's method with this material.

The patent to Okie (1,565,087) obviously has no bearing upon the invention, since it relates to an adhesive composition.

The patents to Alberti (1,234,711) and Koch (1,238,156) contain no suggestion whatsoever of a method at all similar to that claimed by the applicant.

The French patent (557,591) shows a method of manufacturing a laminated disc in which an absorbent or porous layer 2 is united to a moisture resistant layer 8 by means of glue. The exposed layer 8 is not an adhesive layer. It is a moisture resistant layer, and is applied as indicated at B in Figure 3 to only one side of the disc, or to both sides as shown in Figure 7. This moisture resistant layer is rubber treated with sulphur, and hence the construction has nothing whatsoever in common with either the material employed by applicant or the method of manufacture which applicant claims.

In addition to the foregoing art of record, the Examiner's additional search has recently developed certain references which it is thought should be made of record, and to these references we will refer briefly.

The patent to Alberti (43/300) does not show the method claimed, since the adhesive is applied to the cushion disc before the application of the disc.

The patent to Anderson (1,082,516) is from a non-analogous and unrelated art; it has nothing to do with cap manufacture or the application of spots to cushion material. The material employed and to which the coating is applied is not of the character which would resist the action of liquid and, therefore, is not spot material. Moreover, there is nothing in this patent suggestive of applying the method claimed to the art of cap manufacture.

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The patent to Burgard (835,176) discloses a machine for applying tags or labels, and although an adhesive is applied to the strip material used, there is no suggestion that the strip material is of a nature which will resist the action of liquids or, in other words, constitute spot material. As a matter of fact, it is a material "capable of being marked or written upon" (spec. p. 5, l. 42) and, therefore, is gas penetrable and is not impervious to liquid.

Respectfully,

Richard Robert Early
Attorneys

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NOV 25 30

Paper Returned.
 NOV 15 30
 Canceled

SUPPLEMENTAL OATH

Albin H. Warth,
 PROCESS OF PRODUCING CLOSURES,
 Filed January 7, 1927,
 Serial No. 159,743.

U. S. PATENT OFFICE
 DEC 3 1930
 DIVISION

CITY OF BALTIMORE)
 :SS.
 STATE OF MARYLAND)

ALBIN H. WARTH, whose application for Letters Patent for Improvements in Process of Producing Closures, was filed Jan. 7, 1927, Serial No. 159,743, being duly sworn, deposes and says that he has read the attached amendment and that the subject matter thereof was part of his invention, was invented before he filed his original application, above identified, for such invention, was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

Albin H. Warth

Subscribed and sworn to before me, a Notary Public, this

14th day of November, 1930.

Benjamin C. Soule
 Notary Public.

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Appeal No. 135
Decision.

Appeal No. 135

U. S. PATENT OFFICE
BOARD OF APPEALS

DEC - 2 1930

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IN THE UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte Albin H. Warth

Application for Patent filed January 7, 1927,
Serial No. 159,743. Process of Producing Closures.

Messrs. Cushman, Bryant & Darby for applicant.

In view of the examiner's written endorsement that a proposed substitute claim is in his opinion patentable and that the accompanying amendment, filed November 25, 1930, would place the case in condition for allowance, the appeal is dismissed and the case remanded to the examiner for consideration of the amendment and for such action as he deems proper.

M. J. Moore
Assistant Commissioner

W. S. Bushway
Examiner-in-Chief

H. G. Schubert
Examiner-in-Chief

Board
of
Appeals

December 2, 1930

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E.D.

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20.*

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth;

PROCESS OF PRODUCING CLOSURES,

Filed January 7, 1927,

Serial No. 159,743.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

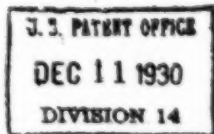
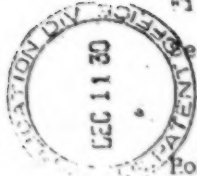
We hereby authorize and request entry of the following amendment in the above entitled application.

IN THE CLAIM

Apply the numeral "10" to the claim of record, and add the following claim:

Herein. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

(orig.)



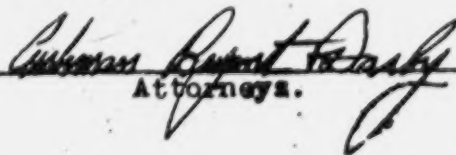
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REMARKS

The foregoing claim contains all of the limitations of the claim allowed, but is somewhat more specific, in that it is limited to the use of metal foil spot material and the production of a metal foil spot. In other words, this claim is limited to a production of one species of the center spot type of cap. In view of the fact that the claim is in no sense broader of the allowed claim, but is obviously more specific, it is thought that it may be entered without further search.

Respectfully,


Attorneys.

JJD:U

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ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON D. C.

Div. 14
MC

351

Serial No. 153,743

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

December 11, 1930

Albin H. Warth, Assor. etc.

Your APPLICATION for a patent for an IMPROVEMENT in

PROCESS OF PRODUCING CLOSURES

filed Jan. 7, 1927 has been examined and ALLOWED with 2 claims.

The final fee, TWENTY-FIVE DOLLARS, WITH \$1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance.

If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of \$25 and \$1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN \$25 PLUS \$1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

Cushman, Bryant & Darby
Washington Loan & Trust Bldg.
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

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DEC 11-30 103972 K

25.02



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FINAL FEE PAID TO THE COMMISSIONER OF PATENTS

(Be careful to give correct Serial No.)

Serial No. 159,743

INVENTOR:

Albin H. Warth

PATENT TO BE ISSUED TO

As per record

NAME OF INVENTION, AS ALLOWED:

Process of Producing Closures

DATE OF PAYMENT:

December 11, 1930

FEE:

Final 2 cls.

DATE OF FILING:

January 7, 1927

DATE OF CIRCULAR OF ALLOWANCE:

December 11, 1930

The Commissioner of Patents will please apply the accompanying fee as indicated above.

Cushman, Bryant & Darby

Attorney.

SEND PATENT TO

Attorneys

Final fees will not be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

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PAGE

Jan. 6, 1931.

A. H. WARTH

1,788,260

PROCESS OF PRODUCING CLOSURES

Filed Jan. 7, 1927

Fig. 1.

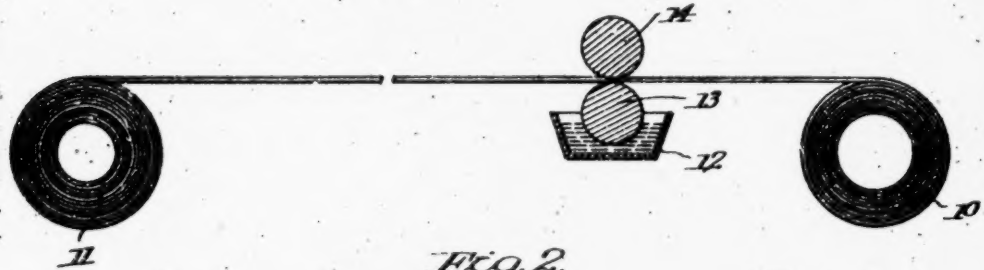


Fig. 2.

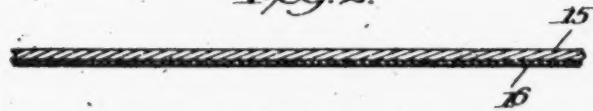


Fig. 3.

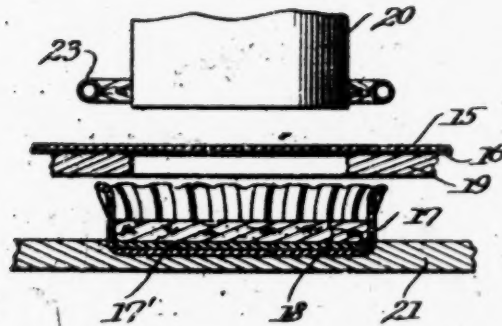


Fig. 4.

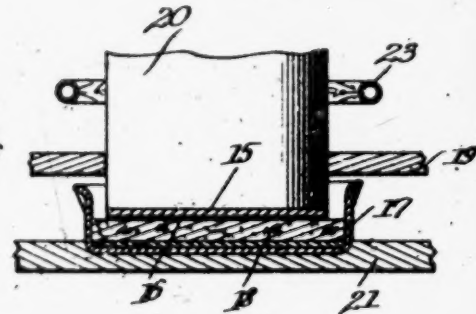


Fig. 5.

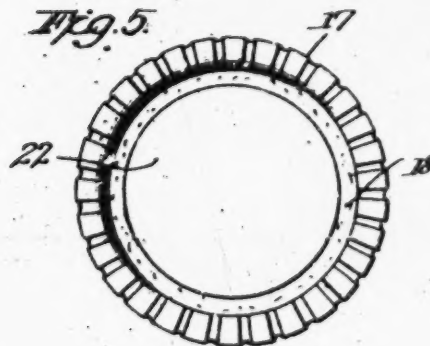
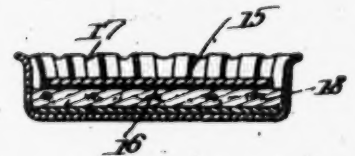


Fig. 6.



Inventor

Albin H. Warth.

By *Lawrence Bryant Smith*

Attorney

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Patented Jan. 6, 1931

1,788,260

UNITED STATES PATENT OFFICE

ALBIN H. WARTH, OF BALTIMORE, MARYLAND, ASSIGNOR, BY MESNE ASSIGNMENTS, TO
CROWN CORK & SEAL COMPANY, INC., OF NEW YORK, N. Y., A CORPORATION OF
NEW YORK

PROCESS OF PRODUCING CLOSURES

REISSUED

Application filed January 7, 1927. Serial No. 159,743.

This invention relates to a method of producing closures of the type in which a sealing disk has a metal foil facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks are given a non-absorbent, gas impervious and acid resistant facing of metal foil, e. g. tin foil, or aluminum foil. Aluminum foil is characterized by the fact that it is substantially non-absorbent and gas impervious, and for this reason the same and other materials having similar characteristics are used to form facing disc or spots upon the cushion material of crown caps. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as spot center crowns.

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method the spots are secured by an underlying tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying discs made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum

of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shell itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing

bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view the invention consists in the method which will be first described and then more particularly pointed out in the claims.

According to the method of the present invention, the strip material having a surface which is substantially non-absorbent and gas impervious, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is waterproof or insoluble in cold water. While various materials may be used I have found a suitable adhesive in a solution of damar gum and rosin in mineral spirit or turpentine, to which

is added 5% or less of a vegetable oil such as soya bean or China-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. This adhesive is waterproof and is not weakened by gases or acids, such as are present in the bottle contents with which crown caps are usually employed.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the metal foil it is dried. While this may be effected by air drying at room temperature it is more rapidly accomplished at a temperature of about 300° F. maintained for about 30 minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body which facilitates feeding and cutting. Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strips of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots

are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Although the adhesive facing is sufficiently thick to provide an adhesive stratum or layer, it is sufficiently thin to avoid any tendency toward the expression during the application of pressure of any of the adhesive from between the facing material and the portion of the cap to which it is applied. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross sectional view of the cap shown in Figure 5.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally

disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

The assembled unit is then permitted to cool and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

What is claimed is:

1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat

and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

2. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing metal foil spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said metal foil strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden.

In testimony whereof, I have hereunto set my hand.

ALBIN H. WARTH.

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1. Application papers.	26. _____
2. <i>Recd.</i> APR 16 1927	27. _____
3. <i>Memorandum</i> March 13 '27	28. _____
4. <i>Power of Atty by Assignor</i> Sept. 29/29	29. _____
5. <i>Pyrexicon</i> Jan. 11-1929	30. _____
6. <i>June 3</i> June 27, 1929	31. _____
7. <i>Final Pyrexicon</i>	32. _____
8. <i>Appeal</i> July 16-1930	33. _____
9. EXAMINER'S STATEMENT JUL. 24 1930	34. _____
10. <i>Letter</i> AUG 6 1930	35. _____
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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records
of this office of the File Wrapper, Contents and Drawing,
in the matter of the

Abandoned Application of

Albin H. Warth,

Filed May 6, 1929,

Serial Number 360,895,

for

Improvement in Bottle Caps and the Method of Making Same.

IN TESTIMONY WHEREOF I have hereunto set my
hand and caused the seal of the Patent Office to be
affixed, at the City of Washington, this seventeenth
day of December, in the year of our Lord one
thousand nine hundred and thirty-four and of the
Independence of the United States of America the
one hundred and fifty-ninth.

ATTEST:


D. C. Sullivan
Chief of Division.

Conway T. Cox
Commissioner of Patents.

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NUMBER (Series of 1925)

260855

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ABANDONED

Name

ALBIN H. WARTH

*Amirco C. W. Lark & Seal Company, Inc., of New York,
N.Y., a corp of New York.*

This application referred to in

Patent No. 1899783

Do not destroy (See order No.

3166, 400 O.G. 1)

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of

BALTIMORE

State of

MARYLAND

Invention

BOTTLE CAPS AND THE METHOD OF MAKING SAME

ORIGINAL

RENEWED

APPLICATION FILED COMPLETE MAY 6, 1929

Petition, Specification,
Oath, First Fee \$10, MAY 6, 1929
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By Commissioner.

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Attorney FRANK T. BENTBORTH 41 PARK ROW NEW YORK N.Y.

*Cushman, Bryant & Darby, Washington, D.C. & New York City,
American Security Bldg.*

Associate Attorney

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No. of Claims Allowed _____ Print Claims _____ in O. G. Class _____

Title as Allowed _____

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UNITED STATES AND
FOREIGN
PATENTS AND
TRADE MARKS

FRANK WENTWORTH
PATENT AND TRADE MARK CAUSES
41 PARK ROW, NEW YORK

CABLE ADDRESS:
"FROWNPAT" NEW YORK
TELEPHONE:
1938 CORTLANDT

REC'D
MAY - 6 29
U.S. PAT. OFFICE

May 4th 1929.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

360895

Enclosed herewith is application of Albin H. Warth,
for United States Letters Patent upon Improvements in Bottle
Caps and the Method of Making Same, together with check in-
cluding the Government filing fee thereon.

Respectfully,

Frank Wentworth

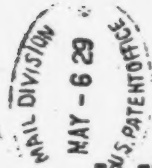
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TO THE COMMISSIONER OF PATENTS:-

Your petitioner, Albin H. Warth, a citizen of the United States, residing at Baltimore, in the County of Baltimore and State of Maryland, (whose Post Office address is 39 York Court, Baltimore, Md.) prays that Letters Patent may be granted to him for the new and useful Improvements in Bottle Caps and the Method of Making Same, set forth in the annexed specification; and he hereby appoints Frank T. Wentworth, of 41 Park Row, in the Borough of Manhattan, City, County and State of New York, his attorney with full power of substitution and revocation, to prosecute this application, to make alterations and amendments therein, to sign the drawings, to receive the patent, and to transact all business in the Patent Office connected therewith.

Signed at the County of Baltimore and State of Maryland, this 1st day of May 1929.

Albin H. Warth

TO ALL WHOM IT MAY CONCERN

Be it known that I, Albin H. Warth, a citizen of the United States, residing at Baltimore, in the County of Baltimore and State of Maryland, have invented certain new and useful Improvements in Bottle Caps and the Method of Making Same, of which the following is a specification, reference being had therein to the accompanying drawings, which form a part thereof.

My invention relates to bottle caps and the method of making same, and more particularly to a cap consisting of a metallic shell containing a cushion disk having what is known as a protecting center disk, and to the method of applying this center disk.

Bottle caps of the type to which my invention relates have heretofore been extensively used for sealing bottles containing mineral waters and other fluids having a deleterious action upon the cushion disk within the cap, particularly when this disk is made of composition cork. Ordinarily the facing disk has been made of tin foil cemented or otherwise attached directly to the cushion disk, or secured thereto by means of a fibrous backing having applied thereto a dry adhesive made tacky by means of a thin film of moisture applied to the cushion disk.

It has been attempted to secure the facing disk upon the cushion disk by means of a liquid cement, but this has proven impracticable because, in order to secure a satisfactory bond, it was necessary to apply the adhesive in a quantity having such thickness that, upon the application of pressure to secure the desired intimate relation between the facing disk and the cushion disk, there was a tendency of the disk to slide into an eccentric position in relation to the disk. In order

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to permit the effective sealing of a bottle with a cap having a tin center or other protective facing, it is essential that the facing disk be accurately centered in relation to the cushion disk so as to avoid any possibility of the neck of the bottle sealing against the facing disk, since this would result in the presence of minute channels or voids at the point of contact of the facing disk with the neck of the bottle. Furthermore, at the points where the line of contact crossed the periphery of the disk, there would be exposure of a small area of the cushion disk to the contents of the bottle.

With the above conditions in mind, the object of my present invention is to provide a bottle cap having a protecting center disk secured in position by a fusible medium devoid of moisture, and thus avoid any possibility of slippage of the disk while pressing it into the necessary intimate relation with the cushion disk.

The medium used for securing the facing disk in place is of itself insoluble and acid resisting and, being fusible at low temperatures, will form a very thin coating between the facing disk and the cork so as to preclude the possibility, in the event of imperfections in the facing disk, of the cork being attacked by the fluid contents of a bottle.

The cementing medium may be readily handled, is not affected by ordinary changes of temperature or atmospheric conditions, may be readily cut to size simultaneously with the cutting of the facing disk so as to secure a bonding stratum co-extensive with the area of the facing disk, and may be quickly fused to secure the desired bonding action between the facing disk and the cushion disk.

In addition to the foregoing characteristics, I am enabled to effectively use a facing disk of fibrous material,

since the nature of the bonding medium is such as to firmly adhere to hard finished papers as well as to natural cork or composition cork.

5 In the commercial production of such caps, it is essential that the facing disk, during production, be cut from a strip of the material, and since the edges of the disk cannot be protected by the same material used for waterproofing the surface of the disk, I have found it desirable, after the application of the facing disk, to apply, to the entire surface
10 of the cap exposed interiorly of the cap, a very thin protecting surfacing of water repellant material. This not only serves to prevent adherence of the cork to the neck of the bottle, and to exclude atmospheric air from the exposed portions of the cushion disk before the cap has been applied to a bottle
15 so as to prevent darkening of the cork by oxidation, but will at the same time, protect the perimater of the center facing disk to an extent to minimize likelihood of the absorption of moisture at the edge of the disk.

20 Bottle caps of the general type to which my invention relates must be produced at a very low cost, and the various materials entering into same and the method of assembling and finishing are matters of great desideratum.

25 The herein described method of making the bottle cap of my invention relates merely to the manner of applying the center facing disk and finishing the cap, it being understood that the assembling of the metal shell and the mounting of the cushion disk therein are entirely independent operations, preparatory to the practicing of the method of my present invention.

30 The invention consists primarily in a bottle cap embodying therein a metallic shell, a cushion disk within said

shell, a facing disk of water repellant, gas impervious fibrous material c smaller diameter than, and concentric with, said cushion disk, and a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk; and in such other novel characteristics as are hereinafter set forth and described, and to the method of making said caps, all as hereinafter set forth and described, and more particularly pointed out in the claims hereto appended.

Referring to the drawings,

Fig. 1 is a bottom plan view upon an enlarged scale of a bottle cap embodying the invention;

Fig. 2 is a section on the line 2-2 of Fig. 1;

Fig. 3 is a vertical section illustrating the first stage of applying the center disk to the cushion disk;

Fig. 4 is a similar view illustrating the final stage; and

Fig. 5 is a view illustrating a stage intermediate those illustrated in Figs. 1 and 2, used when it is desired to apply a wax finish to the cushion disk.

Like letters refer to like parts throughout the several views.

In the accompanying drawings, notwithstanding that the caps themselves are shown upon an enlarged scale, the dimensions of the facing disk and the intermediate bonding stratum are of greatly increased thickness as compared with the actual materials used, even when compared with the enlarged scale of the other parts of the cap.

A bottle cap embodying the invention consists of the usual metallic shell a having a fluted skirt b. Secured within this shell is a cushion disk c which may be either of natu-

5 ral, or of composition, cork. Composition cork is more extensively used than natural cork, and the employment of a tin or other center facing disk is particularly desirable with composition cork cushion disks, since the contents of a bottle will more readily attack the binder of the composition cork than it will natural cork.

10 It is essential, to secure a reliable seal, particularly with carbonated beverages, that the neck of the bottle seal directly against the cushion disk, and not against the center facing disk. This is generally understood, and I follow, in the bottle cap of my present invention, the old practice of using a center facing disk *g*, the diameter of which is relatively less than that of the cushion disk, so that when the cap is applied to a bottle, the lip of the bottle will be
15 positioned between the facing disk and the skirt *h*, the contacting area being such as to bring the facing disk to a point at the inner edge of such contacting area.

20 While heretofore tin centers have been extensively used, it has been found impracticable to use paper disks for this purpose, because in order to make them impervious to gas, and non-absorbent, the finish of the paper had to be such as prevented the formation of a sufficiently good bond between the facing disk and the cushion disk to permit the practical commercial production of such caps.

25 To correct this condition, it has long been the practice to bond a metal foil, such as tin, to a fibrous backing, to which latter the cement would firmly anchor. With this construction of the facing disk it was the practice to apply a dry adhesive to the fibrous backing strip and to make this adhesive tacky by the application of moisture to the cushion disk
30 immediately prior to the coating of the facing strip and the

application of the disk cut therefrom to the cushion disk.

While caps, having a facing disk of the character immediately above described, have been extensively used, their production cost, as compared with the required low cost of such caps, has been very high.

In the cap of my invention, the center disk *d* is composed of a glazed hard paper, such as is generally known as express paper, sulphite paper or bleached Kraft paper having a waterleaf finish. Such papers are, of themselves, independently of the finish, fairly non-absorbent, and when required for pasting purposes, are usually provided with a dry gummed surface. The process of producing such gummed paper results in a curl in the paper.

While such hard tough papers are extremely desirable because of their inherent non-absorbent, gas impervious qualities, their use in bottle caps of the type to which my invention relates was impracticable, prior to my invention, because of the difficulties of feeding and cutting previously gummed paper, and of cementing same to the cushion disk.

In the cap of my invention, however, to obviate these difficulties, I use ungummed paper of the type above referred to, and secure it to the cushion disk by means of a disk of what is known as gutta-percha tissue, which material, in strip form, may readily be handled in a machine and collated with a facing disk paper strip so as to permit a disk of the paper and a disk of the gutta-percha to be simultaneously cut by the same dies. This not only simplifies the production of the cap, but results in a bonding stratum *g* between the facing disk and the cushion disk co-extensive in area with the facing disk itself. The strip of paper from which the disk *d* is cut is indicated at *g'* while the strip of gutta-percha forming the

stratum g is indicated at g'.

Gutta-percha is particularly desirable as a bonding medium, not only because it ensures the distribution of the bonding stratum throughout the entire area of the facing disk, but because it will readily adhere, when softened to the desired extent, to the cork or composition cork, and to hard paper. Furthermore, it possesses the qualities of being non-absorbent and non-impervious to gases. The tissue itself is very thin, about two thousandths of an inch, and when softened, instantly adheres to the cork and to the paper, and is not subject to side sliding or slippage, such as liquid cements. The gutta-percha is not affected by fruit acids, minerals, CO_2 or other ingredients present in the fluid contents of bottles with which such caps are designed to be used.

The gutta-percha may be fused or melted at temperatures sufficiently low to avoid injury to the other previously assembled portions of the cap, and will return to its former solid form at normal temperatures with considerable rapidity.

In the finished cap, particularly when such caps are desired for use with spring water or mineral waters, it is desirable, after the application of the center disk, to apply a very thin superficial coating f of water repellant material, such as paraffin, Ceresin or other waxes, throughout the exposed faces of the cushion and center disk. This coating serves to prevent adherence of the cushion disk to the neck of the bottle, due to the action of the water upon the cork or upon the binder of composition cork, and also serves to more or less effectively seal the raw edges of the paper of the center disk and prevent possibility of the softening of the paper and its ultimate disintegration as a result of a slow absorption

of moisture through such raw edges.

A cap embodying the invention lends itself to rapid production methods, which will now be described.

Preparatory to the application of the center disk d to the cushion disk g, the latter is completely assembled in relation to the shell a. The caps, completely assembled, may be rapidly fed in relation to cutting dies g and h, and as they are brought under these dies, superimposed strips d' of paper, and g' of gutta-percha tissue are fed between the die plate h and the punch g. With the descent of the punch g, disks are simultaneously cut from the strip d' and g', such disks being pressed by the punch upon the disk d with their centers concentric with each other and with said disk d. The punch g is maintained at an elevated temperature required to melt the gutta-percha of the strip g' and make it tacky, so that substantially simultaneously with the pressing of the disks d and g against the disk d, the disks d and g will be bonded together with sufficient permanency to ensure accurate positioning of the disk g and avoid likelihood of displacement of same thereafter. It is preferable, after the disk g has thus been bonded to the disk d, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta-percha and a close adhesion of every portion of the disk g to the disk d.

For this purpose I have shown a carrier i and a heated spring pressed plunger j.

In the drawings, I have shown the punch g and the plunger j as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed.

It will be noted that by following the methods above specified, the heat necessary for the fusing of the gutta-percha

is applied at the surface of the disk *g*, and that the time intervals are sufficiently short to avoid any substantial absorption of heat by the cushion disk *q*. The very thin gutta-percha tissue will melt very rapidly, and after the removal of the punch *g* or plunger *j* will solidify with great rapidity and form a substantially imperceptible stratum intermediate the disks *q* and *g*.

If it is desired to provide the cap with a superficial wax surfacing throughout the area of the cushion disk *q* and center disk *g*, a very small quantity of wax, such as paraffin or Ceresin wax or wax compounds, may be delivered upon said disks within the shell *a* following the application of the disk *g* to the disk *q*, and prior to the application of heat and pressure through the medium of the carrier *i* and plunger *j*. Such heat and pressure will spread a drop of wax in a very thin film about the entire exposed face of the two disks, the raw edge of the disk *g* also being coated with this wax.

The thickness of the disk *g* will be approximately five thousandths of an inch, while the thickness of the binding stratum *g*, in the ultimate product, will be relatively less than the thickness of the gutta-percha tissue, or a mere fraction of a thousandth of an inch. The wax surface stratum will also be but a mere fraction of a thousandth of an inch, and is not perceptible to the eye, although sensible to the touch.

The glazed face of the disk *g* does not require a wax surfacing, and, so far as I have been able to determine, most of the wax is expressed from this surface and forced from the disk to the exposed area of the cushion disk *q*.

If it is desired to provide the cap with a wax surface as described, it is essential that this surface be applied after the center disk *g* has been assembled in the cap, since

the presence of wax upon the surface of the cushion disk g, prior to the application of the disk d, would prevent a proper bonding of this disk d to the cushion disk g.

5 The glazed surface upon the strip g' consists of a waterproof compound consisting of resin, Chinawood oil and a drier, and containing a plasticizer. *on other words the paper is varnished.*

per B insert 28

Express paper, sulphite paper and bleached Kraft paper are all well known commercial products.

4 insert 2

10 It is not my intention to limit the invention to the precise details herein described, it being apparent that such may be varied without departing from the spirit and scope of the invention.

Having described the invention, what I claim as new and desire to have protected by Letters Patent, is:-

1:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk.

2:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, having a glazed surface exposed inwardly of the shell, and a thin stratum of an insoluble fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk.

3:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than,

and concentric with, said cushion disk, a thin stratum of an insoluble, fusible, cementitious material co-extensive in area with said facing disk, between said facing disk and said cushion disk, and a thin film of wax upon the exposed surface of said cushion disk and about the edge of said facing disk.

4:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, and a thin stratum of gutta-percha co-extensive in area with said facing disk, between said facing disk and said cushion disk.

5:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, having a glazed surface exposed inwardly of the shell, and a thin stratum of gutta-percha co-extensive in area with said facing disk, between said facing disk and said cushion disk.

6:- A bottle cap embodying therein a metallic shell, a cushion disk within said shell, a facing disk of water repellant, gas impervious fibrous material of smaller diameter than, and concentric with, said cushion disk, a thin stratum of gutta-percha co-extensive in area with said facing disk, between said facing disk and said cushion disk, and a thin film of wax upon the exposed surface of said cushion disk and about the edge of said facing disk.

7:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, and applying heat

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sufficient to fuse said cementitious material while subjecting said disk to pressure.

5 8:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said cementitious material while subjecting said disk to pressure, and thereafter subjecting said disk to a continuing heat and pressure.

*see
idea*

5 9:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and insoluble, fusible cementitious material, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said cementitious material while subjecting said disk to pressure, delivering a small quantity of wax upon said disks, and thereafter subjecting said disk to a continuing heat and pressure.

5 10:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta-percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, and applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure.

5 11:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta-percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure,

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and thereafter subjecting said disk to a continuing heat and pressure.

*can
fused*
12:- The method of making the herein described bottle cap, including the steps of simultaneously cutting disks from superimposed strips of fibrous material, and gutta-percha tissue, depositing said disks upon a cushion disk positioned within a metallic shell, applying heat sufficient to fuse said gutta-percha tissue while subjecting said disk to pressure, delivering a small quantity of wax upon said disks, and thereafter subjecting said disk to a continuing heat and pressure.

ass B
In witness whereof I have hereunto affixed my signature, in the presence of two subscribing witnesses, this *12th* day of *May* 1929.

Wm H. Math

WITNESSES:-

Miriam Stover
M. Austin

553/17

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STATE OF MARYLAND :
COUNTY OF BALTIMORE : ss.-

Albin H. Warth, the above named petitioner, being duly sworn, deposes and says that he is a citizen of the United States, and a resident of Baltimore, in the County of Baltimore and State of Maryland; that he verily believes himself to be the original, first and sole inventor of the Improvements in Bottle Caps and the Method of Making Same, described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication, in any country, before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; and that no application for patent upon said invention has been filed by him or his representatives or assigns in any country foreign to the United States.

Albin H. Warth

Subscribed and sworn to before me, this *1st* day of *May* 1929.

W. B. Pennington
MY COMMISSION EXPIRES MAY 8, 1929

Fig. 1.

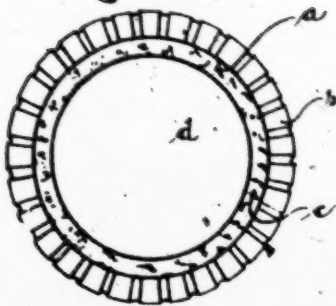


Fig. 2.



Fig. 4.

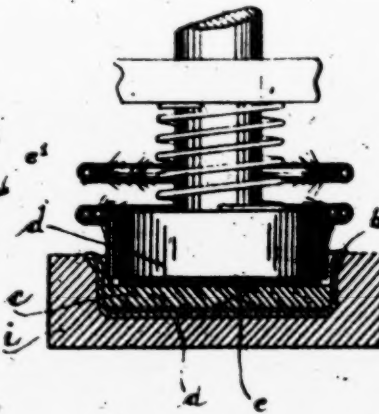


Fig. 3.

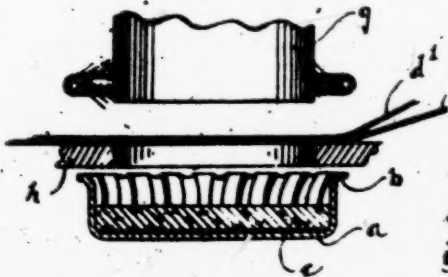
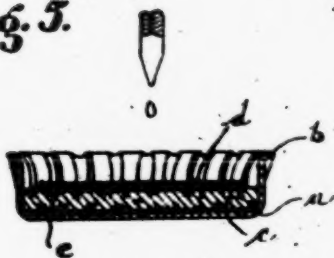


Fig. 5.



Albin H. Warth,

INVENTOR

BY *Frank J. Wentworth*
ATTORNEY.

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Div. 14 Room 102 Annex

Address only

"The Commissioner of Patents,
Washington, D. C.,
and not any official by name"

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

WASHINGTON

B/MC

Paper No. 2

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicantPlease find below a communication from the EXAMINER in
charge of this application.

JAN 23 1930

January 23, 1930

Thomas E. Robertson
Commissioner of Patents

D P O 11-0073

Applicant: Albin H. Warth

Frank T. Wentworth
41 Park Row
New York, N. Y.Ser. No. 360,895
Filed May 6, 1929
For BOTTLE CAPS AND THE
METHOD OF MAKING SAME.This case has been examined and the following art is
cited:

Alberti et al	1,401,300	Dec. 27, 1921	113-80
Taliaferro	1,486,937	Mar. 18, 1924	" "
Alberti	1,199,028	Sept. 9, 1916	215-39
Stahl	1,215,737	Feb. 13, 1917	" "

This application contains claims to two independent
inventions.Claims 1 to 6 cover the bottle cap classifiable in
Class 215-39 in Division 40, while claims 7 to 12 cover
the method of making bottle caps, classifiable in Class
113-80 in Division 14. *Cancelled 1/23/30*The caps covered by claims 7 to 12 may be made in
other ways than by the method of claims 1 to 6.Division is required between these two groups of
claims.As indicating the state of the art after a cursory
examination, attention is called to the above cited patents.*N. J. Brambrough*

Examiner.

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Room 102 Annex.

Paper No. 3.

In the matter of the application of
Albin H. Warth, for Bottle Caps and the Method of Making Same,
Filed May 6th 1929, Serial No. 360,895.
Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

In response to the communication of Jan. 23rd 1930,
from the Examiner in charge of the above entitled matter, ap-
plicant elects to prosecute the present application as to claims
1 to 6. Cancel claims 7 to 12. An early action on the merits
is respectfully requested.

In order to expedite the prosecution of the case, it
is desired to point out that the patent to Alberti et al, No.
1,401,300 relates to a machine for producing a cap similar to
that shown in the Alberti patent No. 1,199,026. Both of these
patents are owned by applicant's assignee. The Alberti patent
No. 1,199,026 discloses a center spot cap, the facing disk 15
of which is a metal foil secured to the cork cushion disk 13 by
means of an albuminous cement. This has nothing to do with
the claims of the present application.

The Stahl patent, No. 1,215,737 refers to an air space
14, within the shell of which is a paper cap 12, an annular seal-
ing disk 11, a laminated facing consisting of a layer of jute
paper stock, a layer of gutta-percha and a thin layer of paper
tissue. This bears no resemblance to the cap of the applica-
tion.

The patent to Taliaferro relates to a method of form-
ing a bottle cap having an unvulcanized rubber composition cush-
ion. This has nothing to do with the structure of the applica-
tion.

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It is thought, in view of the foregoing, that the
claims are clearly allowable over the art referred to by the
Examiner.

Respectfully submitted,

Alvin D. Waith
by Francis P. Newmorth
his attorney.

New York, N. Y.
Feb. 25th 1930.

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Div. 40 Room 264-ANNEY
 DEPARTMENT OF COMMERCE
 UNITED STATES PATENT OFFICE
 WASHINGTON

Paper No. 4

All communications respecting this
 application should give the serial number,
 date of filing, and name of

Hall/N

June 28, 1930. MAILED

JUN 28 1930

Please find below a communication from the EXAMINER in
 charge of this application.

Thomas E. Robertson
 Commissioner of Patents

Applicant: A.H. Warth,

Ser. No. 360,895,
 Filed May 6, 1929,
 For BOTTLE CAPS AND THE
 METHOD OF MAKING SAME.

Frank T. Wentworth,
 41 Park Row,
 New York, N.Y.

Responsive to amendment filed Feb. 26, 1930.

Claims 1, 2, 3, 4, 5 and 6 are novel over

Alberti of record in that gutta-percha is used as a seal-
 ing means. Stahl in Fig. 2, 18 shows gutta-percha as a seal-
 ing means. Also the fibrous facing disc, glazed surface of
 the shell, and wax film on the cushion disc, are novel over
 Alberti, but no new results or advantages have been pointed
 out for these changes. The metallic facing disc of Alberti
 accomplishes the same work as the fibrous disc in the claim.
 To improve the Alberti device by adding to it the novel
 feature of Stahl, together with the novel features for which
 no advantage is seen, would amount to an aggregation of old
 ideas. These claims are therefore rejected over the state
 of the art.

J. N. H.

E. L. Mills
 Act. EXAMINER. 571/23

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Lower 10 High

Crown Cork & Seal Company, Inc.
Baltimore, Md.

NEW PROCESS CORK CO INC
THE CROWN CORK & SEAL CO
OF BALTIMORE CITY
CONSOLIDATED

ATTORNEY'S ROOM

AUG 6 1930

U.S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE.

August 5th, 1930.

Name: Albin H. Warth
Serial No: 360895
Filing Date: May 6th, 1929.

Crown Cork and Seal Company, Inc., assignee of record
of the entire right, title and interest in the above entitled
application,

hereby gives

Messrs. Cushman, Brant & Darby, a firm composed of Arlon V. Cushman,
Arthur L. Bryant and John J. Darby, whose registry number is 7196.

access to the above application with power to inspect the application
file in the Patent Office and make copies of all papers.

OK.
[Signature]

CROWN CORK & SEAL COMPANY, INC.,

By

[Signature]
Vice-President.

THE PERFORMANCE OF ALL OBLIGATIONS ON OUR PART IS GUARANTEED BY OUR STOCK, BOND, ACCOUNTS, AND OTHER ASSETS BEYOND OUR CONTROL.

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U. S. PATENT OFFICE

SEP 2 1 30

EX. 10 PAPER 24

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IN THE UNITED STATES PATENT OFFICE.

Entered by
m LC

A. H. Warth,
BOTTLE CAPS AND THE
METHOD OF MAKING SAME,
Filed May 5, 1929,
Serial No. 360,895.

Division 40.

August 29, 1930.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

In response to the Official Action of June 28,
1930, kindly amend the above entitled application
as follows:

IN THE SPECIFICATION:

Page 10:

Line 6, after "plasticiser" insert --In
other words the paper is varnished--.

IN THE CLAIMS:

Add the following:-

--13. A facing for bottle caps of the type employ-
ing a cushion layer comprising glazed, hard paper having
on one exposed side a coating of varnish, and on the
other a backing of gutta-percha adapted to adhesively
unite the facing to the cushion layer.

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14. In a bottle cap of the type which includes an interior layer of cushion material, a facing overlying said layer and consisting of hard, glazed paper having on one exposed side a coating of varnish, and on the other side facing said layer a backing of gutta-percha adhesively united to both the layer and paper.

15. As a new article of manufacture, paper having a high gloss and having a coating of varnish on one surface of the paper, and a coating of gutta-percha on the other surface.--

add 17

REMARKS

In response to the last Official action, Counsel desire to point out that the use as a liner of a glazed, hard paper varnished on one surface and having a gutta-percha backing or coating has been recognized as patentable; attention is called to the patent to Lange No 1,758,610. Claim 15, added by this amendment is the claim of the Lange patent with which an interference is requested.

The attention of the Examiner is directed to page 8 of the specification, which describes the method of stamping or punching the discs of gutta-percha and paper by means of a heated plunger, as follows:

"Preparatory to the application of the center disk g to the cushion disk g, the latter is completely assembled in relation to the shell a. The caps, completely assembled, may be rapidly fed in relation to cutting dies g and h, and as they are brought under these dies, superimposed strips d' of paper, and g' of gutta-percha tissue are fed between the die plate h and the punch g. With the descent of the punch g, disks are simultaneously cut from the strip d' and g', such disks being pressed by the punch upon the disk g with their centers concentric with each other and with said disk g."

In this manner, the paper and gutta-percha are united by the heat and pressure applied by the punch and attention is directed to the statement immediately following:

"The punch g is maintained at an elevated temperature required to melt the gutta-percha of the strip g' and make it tacky, so that substantially simultaneously with the pressing of the disks d and a against the disk g, the disks d and a will be bonded together with sufficient permanency to insure accurate positioning of the disk g and avoid likelihood of displacement of same thereafter".

In other words, applicant forms a composite liner in this manner by adhesively uniting with the gutta-percha, as set forth, glazed hard paper, as described on page 6, beginning at line 6: -

"In the cap of my invention, the center disk d is composed of a glazed hard paper, such as is generally known as express paper, sulphite paper or bleached Kraft paper having a waterleaf finish".

This paper has its exposed surface coated with a varnish, as described on page 10 of the specification, line 4, in the sentence reading:-

"The glazed surface upon the strip g' consists of a waterproof compound consisting of resin, Chinawood oil and a drier and containing a plasticiser".

Lange describes not only the use of varnished glazed paper but also the uniting of the same with gutta-percha tissue. Note the following statement in the patent specification on Page 1, line

"The cork insert or liner may be protected by a sheet of varnished paper, the unvarnished surface of which is bonded to the cork by a material such as gutta-percha. The gutta-percha in sheet form may be applied to the unvarnished surface of the sheet of varnished paper and blanks may be stamped from this composite material and applied to the cork insert by hot pressing."

Obviously, applicant goes further than Lange and effects, by hot pressing, an adhesive uniting of the gutta-percha sheet

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with the paper almost simultaneously with the uniting of gutta-percha with the cushion layer of the cap. This is not, of course, disclosed by Langé and has the advantage of making the entire product, including both the liner and cap, in a single operation.

But it is apparent that, so far as the broad idea is concerned, both parties describe and claim the same steps and produce the same final product to wit: a liner consisting of (a) hard glazed paper, (b) varnish on one surface of the paper, and (c) a coating of gutta-percha on the other surface, the gutta-percha serving to adhesively unite the liner to the cushion layer of a cap.

Respectfully,

Cushman, Bugas & Daily
Attorneys.

MC:KB

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U. S. PATENT OFFICE

AUG 30 1930

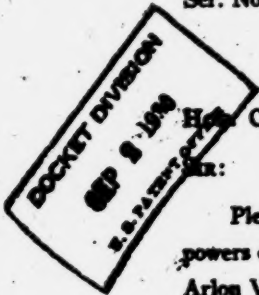
DIV. 40 PAPER No. 7

Applicant: *Albin H. Warth*

Invention: *Bottle caps and the method of making same*

Filed: *May 5, 1924*

Ser. No. *360895*



Hon. COMMISSIONER OF PATENTS,

Please recognize as ~~associate~~ attorneys in the above named case, with full powers of prosecution, Messrs. Cushman, Bryant & Darby, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, (Reg. No. 7196), Washington Loan & Trust Co. Building, Washington, D. C.

All former powers are hereby revoked.

Respectfully,
Crown Cork & Seal Company, Inc.

W. J. Spetner
Trg. Pres.

Accepted

SEP 10 1930
J. E. Robertson
Commissioner

Aug 27th 1930

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DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

WASHINGTON

September 11, 1930.

Cushman, Bryant & Darby
Washington Loan & Trust Bldg.,
Washington, D. C.

Applicant Albin H. Warth

Serial No. 360,895

Filed May 6, 1929

For Bottle Caps and the Method of Making Same

Div. 40.

In this case your power of attorney has been accepted.

Respectfully,

Thomas E. Robertson

Commissioner.

by assignee
Revoking power of attorney
to

Frank T. Wentworth
41 Park Row
New York, N. Y.

Div. 50 Room 322

322

Address only
"The Commissioner of Patents,
Washington, D. C."
and not any official by name

I/X

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 9

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

Please find below a communication from the EXAMINER in
charge of this application.

MAILED

OCT 7 1930

Thomas E. Robertson
Commissioner of Patents

Applicant: Albin H. Warth

Gushman, Bryant & Darby,
Washington Loan & Trust Bldg.,
Washington, D. C.

Ser. No. 360,895
Filed May 6, 1929
For Bottle Caps and the Method
of Making Same

In response to communication filed Aug. 30, 1930:-

Additional reference made of record:-

Lange 1,758,610 May 13, 1930:- 91-68K

This application has been transferred to this division
(Division 50) solely for the purpose of deciding the interference
issue raised by applicant by copying the claim of the above cited
patent.

Claim 15 is rejected to applicant for the reason that he
cannot properly make his claim.

First, the said claims calls for an "article of manufacture";
i. e. the liner exists as such independently of the assembled cap.
In applicant's construction, the caps, completely assembled, are
fed to the cutting dies g and h, and, as they are brought under
these dies, superimposed strips d' of paper, and e' of gutta
percha tissue are fed between the die plate h and the punch g.
The punch g is maintained at an elevated temperature whereby the
gutta percha tissue is rendered tacky and the disc d is bonded
to the cork cushion e. The patentee, on the other hand, first
produces the liner and then applies it to the cork insert by
hot pressing (page 1, lines 40 to 45). Obviously, then, applicant,
in view of his disclosure, does not have a structure which responds
to the "article of manufacture" of said Claim 15.

Secondly, the claim recites a "coating of gutta percha".
Referring to the specification of the patent it is found that the
gutta percha is applied in the form of a solution, the solvent being

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suitably driven off to leave a thin film of gutta percha. Patentee specifically refers to the objections and disadvantages resulting from the use of gutta percha in thin sheet form (page 3, lines 41 to 56) and seeks to escape these objectionable results by applying the adhesive in liquid form, which is expressed in the claim by the word "coating". Applicant does not apply the gutta percha in liquid form as a coating but rather in thin sheet form. Consequently, this claim does not read upon applicant's disclosure inasmuch as he has disclosed no application of the adhesive in liquid form to provide a coating.

In accordance with the practice enunciated in *ex parte* Weber and Woodford, C. D. 1919, 65, applicant is given twenty (20) days from the date of mailing of this letter to respond to this action.

G. Blake

Examiner.

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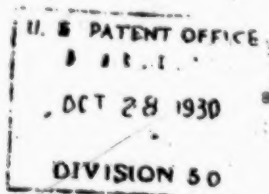
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Letter #10



IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,
BOTTLE CAPS AND METHOD
OF MAKING SAME,
Filed May 5, 1929,
Serial No. 360,895.



Division 50.

October 27, 1930.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

In response to the Official action of October 7, 1930, this application is submitted for reconsideration.

The Examiner states that the applicant cannot make claim 15 for two reasons:

First: The applicant does not apply a gutta percha coating in the form of a solution comprising a solvent which dries out to precipitate a thin film of gutta percha; whereas the term "coating", as used in the claim means gutta percha applied in liquid or solution form with a solvent.

Second: Applicant does not disclose an article of manufacture, i. e., a liner existing as such independently of an assembled cap.

It is fundamental that claims presented in an application must be given the broadest interpretation to which they are reasonably susceptible; and this is particularly true when there is involved a question of interference. The Examiner's attention is directed to

the decision of the Court of Appeals in the District of Columbia in In re Levy, 2 Fed. (2d) 939. In this case the applicant, Levy, sought an interference with the Armstrong patent No. 1,342,885, and the Court said:

"(1) The Assistant Commissioner ruled that Armstrong had in mind the employment of very high frequency, and he therefore read that limitation into the claims. But, over and over again, we have ruled that claims must be given the broadest interpretation which they reasonably will support, and that a party will not be permitted to narrow his claim to suit the exigencies of a particular situation. Miel v. Young, 29 App. D. C. 481; Lindmark v. Hodgkinson, 31 App. D. C. 612; Cox v. Headley, 49 App. D. C. 341, 265 F. 981. The party who states his claims before the Patent Office in broad language is not in a position, when thrown into interference, to read limitations into them. The reason is obvious. If he has asked too much, he may reform his claims in an appropriate proceeding. When he takes claims broader than his invention, however, he thereby is enabled unduly to harass the public."

Not only must the claims presented by the applicant be given the broadest possible interpretation their terms can properly support, but every doubt must be resolved in favor of the applicant's right to make such a claim. In the same case, the Court of Appeals emphasized this in the following language:

"(2, 3) It appearing that the Assistant Commissioner failed to give these claims the broad interpretation of which they reasonably were capable, and that when so interpreted they probably would have been allowable to the applicant, we follow our usual course and resolve any doubt in applicant's favor."

At this point we desire to make clear that we are not urging that the Examiner broadly interpret the terms in the Lange claim, but merely that he must

broadly interpret the claim which the applicant presents. Since this claim is identical with the claim of the patent, we do not see how the Examiner can properly avoid declaring an interference.

**"COATING" IS A GENERIC TERM;
IT APPLIES TO ANY COVERING LAYER.**

It being clear that the claim (15) must be interpreted as broadly as its terms will reasonably permit, it seems proper to inquire, first, what is the usual meaning of the word "coating".

We will refer to (A) the dictionary definitions of the term, and (B) the accepted meaning of the term in the bottle cap art.

A. Webster's New International Dictionary defines:

coating: (1) a coat, or covering; a layer of any substance as a cover or protection;

coat: n. (7) a layer of any substance covering another;

coat: v. to cover with a layer of any substance.

Collier's New Dictionary of the English Language (57th Edition) contains the following definition:

coat: a thin layer and integument.

B. It is customary in this art to define as a coating, a stratum of rubber or gutta percha, which is disposed in the identical position disclosed by the applicant and applied in a similar manner. For example, attention is called to the patent to Koch, No. 1,238,156, August 28, 1917. This patent shows a laminated liner comprising (1) a layer C of gutta percha, (2) a layer D

of paper, (3) a layer E of soft vulcanized rubber, and (4) a layer F of metal foil. These various layers are first inserted in the cap, and then, when properly arranged, the cap is heated in an oven, so that the gutta percha and rubber soften. The gutta percha melts and adheres both to the cork disc and to the paper. This is described in the specification, p. 1, lines 84-95.

The claims of the Koch patent define the layer C of gutta percha as a "coating". For example, claim 3 defines it as "a fusible coating or layer of gutta percha applied to the inner side of said sheet". Claim 4 also refers to the gutta percha as a coating.

APPLICANT'S GUTTA PERCHA IS A
"COATING".

If the Examiner will now refer to the disclosure in this application, it will be clear to him that this application fully supports the ordinary meaning of the term "coating" as defined in the dictionary, and, furthermore, describes a coating in exactly the sense this term is used in the art, as indicated by the Koch patent.

The specification makes clear that the gutta percha spot is positioned beneath the paper and that the descent of the heated punch melts the gutta percha and makes it tacky. This causes the gutta percha to be bonded or united to the paper. The specification says:

"simultaneously with the pressing of the discs d and g - - the discs d and g will be bonded together with sufficient permanency to ensure accurate positioning of the disc g - -".

To emphasize more fully the bonded, adhesive relation of the gutta percha and paper discs, the specification says:

"It is preferable, after the disc g has thus been bonded to the disc d to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta percha and a close adhesion of every portion of the disc g to the disc d."

It is evident from this description that the gutta percha forms a coating or thin film upon the surface of the disc.

The specification and drawing describe and illustrate the gutta percha as a bonded surface upon the paper.

Moreover, the specification makes clear that the stratum of gutta percha is extremely thin, for it says:

"The very thin gutta percha tissue will melt very rapidly, and after the removal of the punch g or plunger i, will solidify with great rapidity and form a substantially imperceptible stratum intermediate the disks g and d."

Hence it is clear that the stratum of gutta percha provided by the applicant is identical with the stratum described in the Koch patent, and which Koch has, with the approval of the Patent Office, defined as a "coating" upon his paper. Moreover, it fully responds to the dictionary definitions of the term "coating", and, obviously, these definitions indicate the usual and proper significance of the word.

The grant of the Koch patent shows that the term "coating" applies and accurately describes applicant's use of gutta percha. To hold that the applicant's structure

does not support a reasonable interpretation of the term would be inconsistent with the action of the Patent Office in approving the use of the same definition by Koch to describe a corresponding use of a gutta percha film.

The Examiner has stated that the term "coating" in the Lange claim means "coating obtained from a gutta percha solution". Now, the applicant is not concerned with the meaning of this word as used in the claim of the Lange patent. Lange may have intended to obtain a patent upon a solution coating, but the fact remains that he did, in fact, obtain a claim which covers a coating in its broadest sense. That Lange may have intended to use this word in a limited sense seems to be immaterial, at least to applicant's right to a patent containing the claim (15) which he now presents, for the reason that the applicant is not seeking a patent upon the subject matter of the Lange disclosure, but upon the invention which the applicant discloses.

The applicant claims to be the first to produce a cap liner comprising paper of the class described (high gloss) having a varnish surface on one side and a coating or layer of gutta percha on the other side in union with the paper. The application discloses (1) paper of this character, (2) the varnish coating, and (3) the gutta percha coating. Although the gutta percha coating is applied by means of tissue, the specification describes that this tissue is fused or bonded to the paper, and, therefore, it covers or coats the surface of the paper. The fact that this gutta percha constitutes a coating is not altered by the

further fact that, at the same time it is applied to the paper, the entire liner is inserted in the cap. This is merely an incident in the process adopted by the applicant for producing the liner.

It would be impossible to obtain the fusion of the gutta percha to the paper, which the specification describes, unless the gutta percha completely coats or covers the surface of the paper disc. This result is not in any way modified by the fact that simultaneously the applicant utilizes the softened gutta percha to unite the paper to the cork disc. He does this instead of permitting the gutta percha to harden and thereafter softening the same in exactly the same manner to effect the union of the discs with the cork.

**"ARTICLE OF MANUFACTURE" IS A
GENERIC EXPRESSION - IT MAY BE
PROPERLY APPLIED TO A PART OF A
MANUFACTURED DEVICE.**

Since the Examiner has held that applicant does not disclose an article of manufacture, it is apparent that he is under the impression that a development to constitute an article of manufacture must not be merely a part of a complete article. Now such an interpretation of the expression is not in accord with the settled meaning of the term "manufacture" as used in the Statute, or the customary meaning of the term as employed in issued patents. The Statutory meaning of "manufacture" has been frequently defined by the Courts. It is a very broad term, and Judge Acheson in Johnson v. Johnston, (C. C.) 60 Fed. 618, 620, stated that:

"The term 'manufacture,' as used in the patent law, has a very comprehensive sense, embracing whatever is made by the

art or industry of man, not being a machine, a composition of matter, or a design."

Walker on Patents (4th Ed. Sec. 17) states:

"Whatever is made by the hand of man and is neither of these (i.e., an art, a machine, a composition of matter, or a design), is a 'manufacture,' in the sense in which that word is used in the American patent laws."

In Ritter-Conley Mfg. Co. v. Aiken (C. C. A. 3d Cir.),

the Court held that either a building or a part of a building is a manufacture and may be patented as such if it involves novelty or invention. In that case

Judge Buffington said:

"To say that a roof falls within the domain of architecture is not to decide the question; for the question is not whether a roof construction is included in architecture, which, of course, it is, but whether the roof section here in question is, in view of its several constituent and co-operating elements, a manufacture. We must not be misled by the factors of size or immobility. The pyramids, by reason of their bulk and solidity, are none the less a manufacture, as distinguished from a natural object."

The Examiner is requested particularly to note this decision, since the Court made clear that a part of a building, e. g., roof, may be claimed as an article of manufacture just as the applicant is here claiming part of the complete cap shown in the drawing.

Furthermore, in the case of International Mausoleum Co. v. Sievert, the Circuit Court of Appeals for the 6th Circuit in referring to the above quoted decision of Judge Buffington, had this to say:

"That case (as does also the opinion of Judge Orr in the District Court (205 Fed. 531) contains an interesting discussion of the question under consideration. It seems clear that the making of the various

parts of the mausoleum would be manufacture. The subject, in our opinion, does not lose its nature from the mere fact of the bringing of the parts together in a complete whole."

Consequently, it is clear from these decisions of the Circuit Court of Appeals of the 3d and 8th Circuits, as well as from the broad definitions of the invention appearing in the earlier cases, that the Examiner should not construe "article of manufacture" to mean only a complete manufactured article; it may be, and frequently is, a part of a complete article just as applicant's liner is a part of his complete cap.

Now, with reference to the accepted meaning of the term "article of manufacture", in this particular art of caps and cap liners, we again refer the Examiner to the Koch patent, mentioned above, and also to the patent to Weisenthanner, No. 857,898, June 25, 1907.

The specification of the Koch patent describes clearly that the four (4) layers of liner material are, one after another, inserted in the cap, and that thereafter the cap is subjected to heat. The claims of this patent do not include the cap as an element, but define merely the liner as an article of manufacture. Each claim of this patent is identical in form or character with claim 15 of the present application. For example, claim 3 reads:

"As a new article of manufacture, a cover for bottle cap corks, comprising an outer surface layer of metal foil, an intermediate sheet of flexible material, an adhesive coating of soft rubber connecting the said sheet and metal foil, and a fusible coating or layer of gutta-percha applied to the inner side of the said sheet."

This patent, therefore, constitutes a clear precedent for a claim of the form presented, and other patents could readily be called to the Examiner's attention, viz; the patent to Weissenthanner, above mentioned.

The patent to Koch and the patent to Weissenthanner do not disclose a liner or "cover", as an article which exists independently of the cap, i. e., prior to its assembly with the cap. In other words, the inventions which Koch and Weissenthanner have patented, as articles of manufacture, do not exist until assembled with a cap. (See specification of Koch, page 1, lines 65 to 96 and Weissenthanner, page 2, lines 44 to 47).

It will be clear that both of these patents claim articles of manufacture and describe liners which are not completely formed until with a cap.

**APPLICANT DISCLOSES A LINER
AS AN ARTICLE OF MANUFACTURE.**

The above cited decisions and the patents mentioned show that this application fully supports the usual meaning of "article of manufacture" and its accepted meaning in the art to which the present invention relates. It is, therefore, believed that the Examiner will desire to reconsider his holding that the term "article of manufacture" as applied to a lining must mean a liner formed prior to the construction of the cap and existing independently of the cap. To interpret the expression in this way is not in accord with either the past actions of the Patent Office in the grant of earlier patents or with the decisions of the Court bearing on the meaning of "manufacture".

The claim (15) does not state that the liner is formed prior to or independently of its assembly with the cap.

It is clear from applicant's disclosure that he forms the liner at the same time he assembles same with the cap, but the claim makes no reference to the method of its manufacture or to the time of manufacture. The claim defines merely the finished liner and this article as defined in the claim is disclosed in both the specification and drawings.

The liner as an article of manufacture is made by the applicant and in the form defined is present in the finished product.

The Examiner should observe that there is a clear distinction between the question here presented and that considered by the Commissioner in Ex parte Howard 1924 C. D. p. 75. In that case, the applicant was attempting to claim an article which existed only at an intermediate stage of a process and which did not appear as such in the final product. Consequently, it was held that this article was not a "manufacture", as defined by the Statute. The Commissioner said:

"The article claims are drawn to a freely-falling drop or gob of molten glass. The drop exists as such only while falling to the mold. When it reaches the latter, it assumes a different shape, solidifies immediately, and is transformed into a completed article. In view of the decisions cited, I am of the opinion that it is the finished product that the patent statutes are designed to protect as 'manufactures' and not something which is produced at a particular stage of the manufacturing process and which is evanescent and adapted for use only in so far as it may enter into and be modified by subsequent steps of a method for producing a completed article.

"In reaching this conclusion I am not unmindful of the fact that products of intermediate steps of a process or method may be inherently useful and new, and therefore may be patented as articles. Thus a roof is a 'manufacture' within the meaning of section 4886, Revised Statutes, and in constructing a roof the builder may also fabricate the clay tiles, beams, bolts, rivets, etc., used in forming the same, each of which would be intermediate products and, if new, patentable as a 'manufacture'. These articles, however, are inherently useful and complete in themselves. Nothing remains to be done to make a finished product. On the other hand, the drop of glass claimed is in its temporary condition while being transformed into something else. The 'manufacture' is not yet made, the process of manufacturing is still incomplete."

In the present case, the liner appears in the final product, and in the precise form defined. Hence, it is a distinct element of the cap and an article of manufacture. Of course, it is associated with a cap, just as a roof may be constructed with a house, but as pointed out in the decisions above cited, this constitutes no reason why it cannot be claimed as an article of manufacture.

In other words, the claim (15) is directed to a sub-combination or sub-element of the complete device, and, so far as this claim is concerned, it is immaterial whether the liner is manufactured prior to its assembly with the cap or simultaneously with the assembly operation, as disclosed by the applicant. As the Examiner will observe, there is no suggestion in the claim that the paper is in sheet or strip form, nor is there any limitation requiring its production prior to assembly with the cap.

It has been repeatedly held that an applicant

may claim as an article of manufacture any part of an article or machine which is useful and constitutes an entity in the final product or machine.

In the case of Roberts v. H. P. Nail Co., 53 Fed. 920, the Court said:-

"In a combination patent it is permissible for the patentee, after claiming his whole machine, to claim also the combination of fewer parts than the whole, provided the combination of the parts is new, even if, taken alone, the combination will not result in any known useful product. This is fully established in the decision of Judges McKernan and Nixon in the case of Wells v. Jaques, 5 O. G. 364. In that case the patent was for a combination of elements making up a hat-body machine. The combination embodied a great many different parts, and the patentee made quite a number of claims, of which one only embodied the whole machine. It was objected that only the claim for the whole machine was valid, because the devices in combination in the other claims could not be employed alone for any useful purpose, and, only being useful when combined into a complete machine, the patent should have been for the unit, and not for the different combinations. To this objection Judge Nixon says:

"I cannot yield assent to that proposition. The separate claims of a patent must be construed in reference to the specifications; and, if the specifications point out the arrangements to be made, or the methods to be adopted, in connection with other instrumentalities which the inventor may not claim as new, in order to render his invention practically useful, the test to be applied is not whether the claim alone will produce a useful result, but whether it will do so supplemented by and in connection with such designated devices and instrumentalities."

The same question was presented in the case of Chambers-Baring-Quinlan Co. v. Fairas, 75 Fed. 663, and in subsequent cases, such as Thomson-Houston Elec. Co. v. Black River Traction Co., 135 Fed. 763, where the

"Many subcombinations, although new, are not useful, except to perform their appropriate functions in the machine of which they are a part. The description in the patent of the whole machine, and of the means or mode by which the subcombination is brought into co-operative relation with the other parts, usually indicates how the subcombination may effect a useful result. When this is so, the combination need not be operative alone, because (to use the language of Mr. Walker) 'utility is justly ascribed to things which have their use in cooperating with other things to perform a useful work.'"

In the case of National Metal Casting Company v. American Steel Foundries, 182 Fed. 639, a similar ruling was adhered to. In Wright Co. v. Herring-Curtiss Co., 204 Fed. 607, the Court said:

"In such circumstances, as I read the authorities, the claim is valid as a subcombination. Thomson-Houston Electric Co. v. Black River Traction Co., 135 Fed. 759, 68 C. C. A. 461; Deering v. Winona Harvester Works, 155 U. S. 286, 15 Sup. Ct. 1187, 39 L. Ed. 153; Taylor et al v. Sawyer Spindle Co., 75 Fed. 391, 22 C. C. A. 203. In Railroad Co. v. Dubois, 12 Wall, 47, 20 L. Ed. 265, the Supreme Court of the United States says:

"Undoubtedly a patentee may claim and obtain a patent for an entire combination, or process, and also for such parts of the combination or process as are new and useful, and he may claim and obtain a patent for both."

CONCLUSION.

It is submitted that this application presents a disclosure which justifies the applicant (1) in defining the invention as an "article of manufacture" and (2) in defining the gutta percha as a "coating" for the paper. And it is submitted that if these

-14-

terms are given their proper meaning and the broadest meaning to which they are reasonably susceptible, the Examiner cannot logically reach a contrary conclusion.

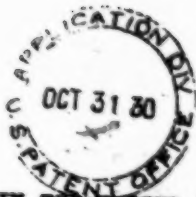
Respectfully,

JJD:W

Richard L. Ryan
Attorneys for Applicant.

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IN THE UNITED STATES PATENT OFFICE

U. S. PATENT OFFICE
DIVISION 50
OCT 31 1930

Albin H. Warth,
BOTTLE CAPS & METHOD OF
MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895

Div. 50.

October 31, 1930

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

Supplementing the amendment of Oct. 27, 1930, we
hereby authorize and request entry of the following
amendments in the above entitled application.

IN THE SPECIFICATION

no amendment
See Amendment D in line 5
Page 10

C'
Per E
Line 8 after the matter inserted by amendment
of Aug. 29, 1930, insert the following: --The varnish
described provides a film which is insoluble. That is
to say, the film is insoluble in acetic acid, citric
acid, tartaric acid, and carbonic acid, and it is also
insoluble in alcoholic beverages of such alcoholic per-
centage as may be ordinarily obtained for human consump-
tion. The Chinawood oil is typical of oils which are
resistant to alcohol and, therefore, makes the varnish
alcohol resisting or insoluble.

IN THE CLAIMS

Add the following:

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Per E

--16. A composite material ^{of the character described} ~~for use in container~~
caps comprising a layer of sheet material, a protecting
film of varnish adhering to one surface of said layer
of sheet material, a layer of resilient material, and a
waterproof adhesive bonding said resilient material to
the other surface of said layer of sheet material, whereby
the adhesive is protected from the action of contained
beverages by the film of varnish and a composite ma-
terial impervious to moisture is formed.

C 17. A composite material ^{of the character described} ~~for use in container caps~~
comprising a layer of sheet material, a protecting film
of varnish adhering to one surface of said layer of
sheet material, a layer of fibrous material, and a water-
proof adhesive bonding said fibrous material to the other
surface of said layer of sheet material, whereby the ad-
hesive is protected from the action of contained beverages
by the film of varnish and a composite material impervi-
ous to moisture is formed.

18. (Claim 1.) A composite material of the character
described comprising a layer of sheet material, an insoluble
film of varnish adhering to one surface of said layer of
sheet material, a layer of resilient material, and a water-
proof adhesive bonding said resilient material to the other
surface of said layer of sheet material, whereby the ad-
hesive is protected from the action of solvents by the
film of varnish and a composite material impervious to
moisture is formed.

19. (Claim 2.) A composite material of the character described comprising a layer of sheet material, an alcohol resistant film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material.

20. (Claim 3.) A composite material of the character described comprising a layer of sized paper, an insoluble film of varnish adhering to one surface of the paper, a layer of resilient material, and a film of waterproof adhesive bonding said resilient material to the other surface of the paper, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

21. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising a resin and an oil the dried film of which is resistant to alcohol.

22. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising resin and an oil the dried film of which is resistant to alcohol.

C 23. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising resin and Chinawood oil.

24. (Claim 8.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive comprising gutta percha bonding said layer of resilient material to the other surface of said sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

25. (Claim 9.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

C' 26. In a container cap and as a liner therefor, a composite material comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material and a waterproof adhesive bonded to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

27. In a container cap and as a liner therefor, a composite material comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material and a waterproof adhesive in the form of gutta percha bonded to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.--

REMARKS

The Examiner's attention is called to the fact that a number of the foregoing claims have been copied from the patent to Lange, No. 1,779,884, granted October 28, 1930. A number of the other claims are slightly broader

than the patent claims, and are submitted at this time so that the record may be clear that applicant is claiming the broad subject matter.

With respect to the broader claims, it will be noted that claims 16 and 17 are based upon claims 1 and 9 of the Lange patent.

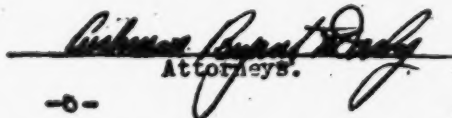
Claims 26 and 27 are somewhat similar to claims which were cancelled by the patentee directed to a three layer material, to wit: varnish, paper and gutta percha, and do not refer to the cushioning material. This two layer material is clearly disclosed by the applicant and is formed when assembled with the cushion material. So that the Examiner may readily observe the identity of applicant's claims with those of the patent, we have noted the patent claims in connection with those which have been copied exactly. On other words, it will be observed that applicant has copied in exactly the form appearing in the patent claims 1, 2, 3, 8 and 9.

Claims 4, 5 and 6 of the patent appear in substance in this amendment as claims 21, 22 and 23.

The specification has been amended to set forth the inherent characteristics of the varnish described, and a supplemental oath covering this amendment will be filed.

It is requested that an interference be promptly declared.

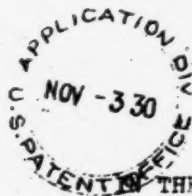
Respectfully,


Attorneys.

JJD:U

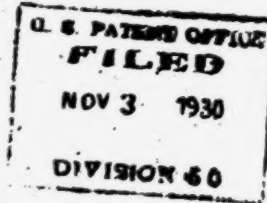
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THE UNITED STATES PATENT OFFICE



Albin H. Warth,

BOTTLE CAPS & METHOD
OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895.

Div. 50.

SUPPLEMENTAL OATHCITY OF BALTIMORE)
:SS.
STATE OF MARYLAND)

ALBIN H. WARTH, being duly sworn, deposes and says that he is the applicant in the above entitled application, that he has read the recently filed amendment therein, copy of which is attached hereto, that the subject matter of the said amendment was part of his invention, was invented before he filed his original application, above identified, for such invention, was not known or used before his invention, was not patented or described in a printed publication in any country more than two years before his application, was not patented in a foreign country on an application filed by himself or his legal representatives or assigns more than twelve months before his application, was not in public use or on sale in this country for more than two years before the date of his application, and has not been abandoned.

Sworn and subscribed to, before me, a Notary Public,
this 1st day of November, 1930.

Notary Public.

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IN THE UNITED STATES PATENT OFFICE

Albin H. Warth

BOTTLE CAPS & METHOD OF
MAKING SAME,

Filed May 5, 1929,

Serial No. 360,695

Div. 50.

October 31, 1930

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

Dup

Supplementing the amendment of Oct. 27, 1930, we hereby authorize and request entry of the following amendments in the above entitled application.


IN THE SPECIFICATION

Page 10

Line 8 after the matter inserted by amendment of Aug. 29, 1930, insert the following: --The varnish described provides a film which is insoluble. That is to say, the film is insoluble in acetic acid, citric acid, tartaric acid, and carbonic acid, and it is also insoluble in alcoholic beverages of such alcoholic percentage as may be ordinarily obtained for human consumption. The Chinawood oil is typical of oils which are resistant to alcohol and, therefore, makes the varnish alcohol resisting or insoluble.--

IN THE CLAIMS

Add the following:



--16. A composite material for use in container caps comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

17. A composite material for use in container caps comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed. ¶

18. (Claim 1.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

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23. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising resin and Chinawood oil.

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25. (Claim 9.) A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

26.. In a container cap and as a liner therefor, a composite material comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material and a waterproof adhesive bonded to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.

27. In a container cap and as a liner therefor, a composite material comprising a layer of sheet material, a protecting film of varnish adhering to one surface of said layer of sheet material and a waterproof adhesive in the form of gutta percha bonded to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of contained beverages by the film of varnish and a composite material impervious to moisture is formed.--

REMARKS

The Examiner's attention is called to the fact that a number of the foregoing claims have been copied from the patent to Lange; No. 1,779,884, granted October 28, 1930. A number of the other claims is slightly broader

than the patent claims, and are submitted at this time so that the record may be clear that applicant is claiming the broad subject matter.

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It is requested that an interference be promptly declared.

Respectfully,

Attorneys.

JJD:U

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Div. 56

Room 311

Address only

The Commissioner of Patents,
Washington, D. C.,
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 13

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

FJP/jnk

Please find below a communication from the EXAMINER in
charge of this application.

November 24, 1930

Thomas E. Robertson
Commissioner of Patents

Applicant: Albin H. Warth

Cushman, Bryant & Darby,
Washington Loan and
Trust Bldg., Washington,
D.C.

Ser. No. 360,895
Filed May 6, 1929
For Bottle Caps and The Method
of Making Same

NOV 24 1930

Responsive to amendment filed Oct. 31, 1930.

The following additional reference is made of record:

Lange 1,779,884 Oct. 28, 1930 154-45.5

Applicant's argument of Oct. 27, 1930, relative to claim 15
has been considered but the examiner sees no reason for changing
his attitude as expressed in the office letter of Oct. 7, 1930.

In this connection, applicant's attention is invited to
in re Bijur 398, O.G. 355, from which it will be clear that the
terms used by Lange in defining his composite stock material
cannot be disregarded.

On reconsideration, claim 13 also is rejected as applicant
cannot make this claim. Applicant does not at any time make
such a paper as is defined by this claim as a separate identity.

Claim 14 is for a bottle cap examinable in Division 40.

Applicant does not give in his description such a full
statement of his glazed surface on page 10 in lines 4-6, as will
now support the function attributed to this varnish by the inser-
tion after line 8, page 10, by the amendment of Oct. 31, 1930.

Applicant is, therefore, required to cancel the insertion
after line 8, page 10, by the amendment of Oct. 31, 1930.

Applicant is further notified that the directions for this
insertion are confusing because they refer to an amendment of Aug.
29, 1930, whereas there is no such amendment, the amendment of
the earlier date having been made in line 6, page 10.

Claims 16-27, inclusive, are rejected as applicant has never

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Ser. No. 360,895. Sheet #2.

disclosed such a composite material as is referred to in these claims whereas the material of Lange is a separate identity or material and so described and claimed by Lange in patent 1,779,884.

Claims 16 and 17 are further rejected as broader than the disclosure as any varnish will not do nor has applicant gone into any detail in his description as to the character of varnish necessary for the purpose whereas the Lange patent 1,779,884 is clear on this point.

Claims 18 and 20 are further rejected as applicant has no basis herein for his reference as to an "insoluble film of varnish".

Claim 19 is further rejected as applicant does not give all the characteristics of his varnish wherefrom it may be stated that the film is alcohol resistant.

Claim 20 is further rejected because applicant does not disclose the use of sized paper.

Claims 21 and 22 are further rejected as there is no basis herein for applicant's reference in this claim to the dried residue of a varnish nor is there any basis in the disclosure for the use of any resin and any oil which is resistant to alcohol.

Claim 23 is rejected also for a reason similar to that last mentioned, i.e., applicant does not disclose how his waterproof glazed surface is made.

Applicant is furthermore required to cancel claims 21-27 as being divisible from the bottle cap claims to which applicant has already elected to restrict this case.

Stock material such as is disclosed and claimed by Lange 1,779,884 is classified and examined in Division 56, class 154-45.5 whereas the bottle cap itself is examinable in Division 40.

Inasmuch as a patent could not possibly issue to applicant

Ser. No. 360,895. Sheet #3.

on this application as to claims 21-27, inclusive, no interference will be declared.

In accordance with the practice set down in *ex parte* Weber and Woodford, C.D. 1919, page 65, applicant is required to respond to this rejection prior to Dec. 13, 1930, and prepare this case for appeal as indicated in the decision referred to.

This action is taken by the examiner in Division 56 upon transfer of this case from Division 50 because applicant has copied claims from a patent granted in Division 56, i.e., the Lange patent cited above.

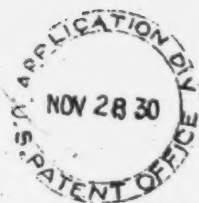
The rejection of claim 15 originally made in Div. 50 is here repeated after consideration of applicant's argument and conference with the examiner in charge of Division 50 and in view of the examiner's action herein regarding claims 16-27, inclusive, it was apparent that claim 13 should be rejected for the same reason, this action being taken to expedite the prosecution of the case.

J. H. Porter
Examiner.

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IN THE UNITED STATES PATENT OFFICE

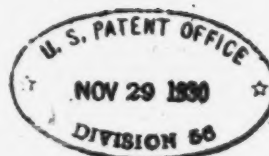
Albin H. Warth

BOTTLE CAPS AND THE METHOD
OF MAKING SAME,

Filed May 6, 1928

Serial No. 360,895.

Div. 56.



November 28, 1930

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

It is requested that the amendatory matter submitted in the last amendment be inserted at page 10, line 8, after the amendatory matter previously inserted at that line.

REMARKS

In the light of a recent interview kindly granted applicant's attorneys by the Primary Examiner, reconsideration of the refusal to declare an interference between this application and the Lange patent #1,779,884, is respectfully requested.

Applicant has copied for interference purposes claims 1, 2, 3, 8 and 9 of this patent; these claims of the patent are respectively, 18, 19, 20, 24 and 25 of this application.

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The rejection of this group of claims seems to be based upon the following principal grounds, namely:

- (A). Applicant does not disclose the composite material as a separate identity or article from a cap.
- (B). Applicant does not disclose an insoluble film of varnish.
- (C). Applicant does not disclose an alcohol resistant film of varnish(claim 19).
- (D). Applicant does not disclose sized paper (Claim 20).

Each of the above grounds of rejection will be separately discussed, and it is believed that the Examiner upon considering the following remarks, which cover the same arguments advanced at the interview, will order that the interference be promptly declared.

(A). APPLICANT DOES NOT
DISCLOSE THE COMPOSITE MATERIAL AS
A SEPARATE IDENTITY OR ARTICLE FROM A CAP.

This ground of rejection is obviously based upon the premise that the claims of the Lange patent are limited to a material which is formed prior to its assembly with the cap. Plainly, both the patentee and the applicant are concerned with the manufacture of a liner for a cap. The first paragraph of the patent specification states that the invention relates "to a composite material especially adapted for the purpose of providing a liner for bottle caps". Applicant discloses a process for forming a similar liner, but instead of assembling the various layers of the liner outside the cap, he positions the cap, with the cushion layer already inserted, beneath cutting dies (Fig. 3), so that the final steps of the assembly are completed within the cap. Nevertheless, the complete article, as formed by the applicant, corresponds exactly to the complete article produced by the patentee.

Although the patentee shows the material in the drawings removed from a cap, he states distinctly in his specification that this material may be formed in exactly the same manner described by the applicant. Note particularly the first paragraph of the specification, p. 2, l. 6-14, which reads:

"the material may in a sense be assembled within the container cover. For example, the paper may be coated, or otherwise provided with films of varnish and adhesive. The resilient material may be inserted in the container cover and thereafter the varnished and adhesive coated paper may be applied to the fibrous material within the container cover or cap."

From this statement in the specification, it is apparent that the patentee sought claims which would cover his laminated cap-liner material whether (1) completely assembled outside the cap and then inserted, or (2) partially assembled or formed in the cap.

Furthermore, a reading of the claims shows that they are not limited to a material in sheet or strip form, but cover clearly a material produced in accordance with the above quoted statement in the patent specification. Not a single claim of the patent mentions that the material is in sheet or strip form. Moreover, many of the claims state that the material is "impervious to moisture". Note particularly the last lines of claims 1, 3, 8 and 9, each of which has been copied by the applicant. Obviously, the material would not be impervious to the moisture unless it is inserted in a cap, since one surface of the cushion layer is not protected by a moisture impervious facing or spot. It is true that applicant's spot does not extend over the entire surface of the cushion material, but it does extend over as much of the

cushion material as is exposed to the bottle contents; hence applicant's composite material is impervious to moisture throughout the entire area exposed to the container contents.

Therefore, in view of the plain language of the specification which distinctly describes a mode of manufacture almost identical with that described in the present application and in view of the broad language of the claims, we submit that it is evident the patentee intended to cover a laminated material of the character specification, regardless of whether this material is produced outside a cap or inside a cap, as described by the applicant.

Aside from this statement in the specification of the patent, the fact that the applicant positions his cushion layer within a cap before he applies the other two layers (adhesive and spot material) thereto, constitutes an additional feature of the applicant's invention. In other words, applicant goes a step further than the patentee specifies in his claim and effects a complete assembly of the several layers with the cap at the same time that he assembles the layers. Manifestly, it does not constitute a patentable variation of the applicant's invention to apply the adhesive and spot layers to the cushion material before the latter is inserted in a cap.

(B). APPLICANT DOES NOT DISCLOSE
AN INSOLUBLE FILM OF VARNISH.

Admittedly, the applicant did not state that the surfacing which he applies to the paper is varnish or an insoluble varnish, but the specification (p. 10, l. 5) does contain the following statement:

"The glazed surface upon the strip consists of a waterproof compound consisting of resin, Chinawood oil and a drier, and containing a plasticizer."

The above quoted sentence describes not only a varnish, but an insoluble varnish in the sense of the term insoluble is used in the specification of the Lange patent.

Webster's New International Dictionary (1925 Edition) defines "varnish":

"A more or less viscid liquid (usually a solution of resinous matter in an oil or volatile liquid) which, when spread upon a surface, dries either by evaporation or chemical action, forming a hard lustrous coating capable of resisting more or less the action of air and moisture."

Definitions similar to the above will be found in other dictionaries, and we submit that it is impossible to find a definition of varnish which is not fully answered by the above quoted portion of the specification. The definition quoted specifies as the only essential characteristics of varnish (1) the resinous matter and (2) the oil or drier. Applicant states that his surface consists of (1) resin (2) Chinawood oil, and (3) a drier.

As to whether this composition described by the applicant constitutes an insoluble varnish, we must first understand what the patentee means by the word "insoluble". The patent specification states p. 1. 1. 80-84:

"In general it may be stated that by insoluble varnish is meant a varnish which is insoluble or inert to such solvents as alcohol, acetic acid, citric acid, and carbonic acid."

Admittedly, applicant does not explain why he uses a varnish of the character described in the specification, but by the last amendment he did explain this when he said:

"The varnish described provides a film which is insoluble. That is to say, the film is insoluble in acetic acid, citric acid, tartaric acid and carbonic acid etc."

This additional matter inserted in the specification is definitely covered by a supplemental oath which accompanied the amendment and which the Examiner will find in the Official file. The insertion does not constitute new matter, as suggested by the Examiner, for the reason that it merely discloses essential and inherent characteristics of the composition set forth in the original specification. To any one familiar with the resistant action of varnishes and compositions of the nature described, it would be apparent that any composition produced in the manner explained, would be resistant to the various acids mentioned. Whether the applicant's composition is insoluble is, of course, a question of fact; but the applicant states, under oath, that it is insoluble in these acids, and we believe the Examiner will be unable to find anything which would support him in controverting this statement. If the Examiner desires affidavits additional to those of the applicant covering the statement that the composition employed by the applicant is insoluble, we will be pleased to furnish the same. But we submit that such affidavits are unnecessary in view of the applicant's own supplemental oath and the further fact that this question will be fully considered in the interference.

If the Examiner will consider for a moment the reason why applicant provides this surface, he will appreciate that there is every reason to conclude that applicant's composition is insoluble, rather than to conclude to the contrary. Why did the applicant provide this composition surface? Is it not provided for the purpose of protecting the paper from the beverage contents? As the Examiner knows, the

applicant is a highly skilled inventor in this art and for years he has been working upon the problem of protecting the composition layers of caps from the contents of bottles with which these caps are used. The applicant is the Chief Chemist of the Crown Cork & Seal Company, assignee of this application, and for many years has been devoting himself to the problem of protecting the composition cork liners by means of suitable moisture and acid proof facings. Is it natural, therefore, that in producing an improvement having as its primary object to afford this protection, the applicant would provide an exposed varnish surface not adapted to protect the underlayers from the acids which are usually present in the beverages with which these caps are employed? Merely to state the question is to answer it in view of the extended experience of the applicant and his avowed purpose in providing the glazed surface.

(C). APPLICANT DOES NOT DISCLOSE
AN ALCOHOL RESISTANT FILM OF VARNISH (CLAIM 19).

This objection relates primarily to claim 19 (claim 2 of the patent) which specifies "an alcohol resistant film of varnish". By reference to the above quoted portion of the specification (p. 10, l. 5-6) it will be observed that applicant states his surface composition includes Chinawood oil. The patentee also uses Chinawood oil, and with reference to this ingredient states (p. 3, l. 75 et seq.):

"Cumar gum may be compounded largely with certain of the oils which are resistant to alcohol, such as for example Chinawood oil . . .".

Hence it is apparent that the patentee's varnish is resistant to alcohol because of the inclusion of Chinawood oil. Manifestly, the applicant's composition is also resistant to alcohol, since it includes the same alcohol re-

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sistent ingredient.

(D). APPLICANT DOES NOT DISCLOSE
SIZED PAPER (CLAIM 20).

This objection relates primarily to claim 20, which is claim 3 of the patent. This claim specifies "a layer of sized paper".

The applicant has described that he employs express paper, for he says:

"In the cap of my invention the center disc d is composed of glazed hard paper, such as is generally known as express paper etc."

Express paper is officially defined as a highly polished calendered or sized paper, and in this connection the Examiner's attention is called to the hand-book of official definitions of paper available in his division. This book is believed to be on the desk of the Assistant Examiner, Mr. Chandler.

CONCLUSION

It is believed that the foregoing remarks will completely satisfy the Examiner as to the applicant's right to make claims 1, 2, 3, 8 and 9 of the patent, which claims are numbered, respectively, 18, 19, 20, 24 and 25 in this application.

Claims 13, 14 and 15 will not be discussed, since it is thought unnecessary to do so in this amendment, for the reason that an interference is being declared involving claim 15 and the earlier issued Lange patent (1,756,610) from which the claim was copied. In regular course, applicant will present a motion to shift the burden of proof in that interference and, consequently, there seems to be no occasion to discuss at this time the applicant's right to

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make the claim in this case. For the same reason claim 13 will not be discussed. The requirement of division with respect to claim 14 is noted.

Claims 16 and 17. These claims are not taken from the patent, but are similar to claims of the Lange patent. The rejection upon the ground that the claims are broader than the disclosure is believed improper for the reason that, as pointed out in the above quoted definition of varnish, any varnish is resistant to water. Consequently, if the cap is to be used only for closing water containers, any varnish would be suitable. This holding that the use of the broad term "varnish" is not proper is inconsistent with the allowance of the earlier Lange patent 1,758,610, which covers a paper having one surface coated with varnish; no reference is made in the claim of this patent to any particular characteristics of the varnish. It is submitted that since any varnish would be suitable for some purposes, it is not necessary that the broad claims be restricted to an insoluble varnish.

Claims 21 and 22. The objection to these claims on the ground that applicant does not disclose a "dried residue" of the varnish is improper for the reason that applicant specifically discloses that his varnish contains "a drier". Obviously, therefore, when this drier functions, what remains after the drying period is a varnish residue.

It is submitted that an interference should be declared between this application and claims 1, 2, 3, 8 and 9 of the Lange patent 1,779,884, granted Oct. 28, 1930.

Respectfully,

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JJD:U

Robert R. Smith & Co.
Attorneys.

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Div. 56

Room

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RIP/C

Paper No.

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Address only
 "The Commissioner of Patents,
 Washington, D. C."
 and not any official by name

DEPARTMENT OF COMMERCE
 UNITED STATES PATENT OFFICE
 WASHINGTON

All communications respecting this
 application should give the serial number,
 date of filing, and name of
 the applicant

Please find below a communication from the EXAMINER in
 charge of this application.

Dec. 2, 1930.

Thomas E. Robertson
 Commissioner of Patents.

U.S.P. 11-2222

Applicant: A.H. WERTU

Cushman, Bryant & Darby
 Wash. Loan & Trust Bldg.,
 Washington, D.C.

Ser. No. 360,895
 Filed May 6, 1929
 For Bottle Caps & the Method
 of Making Same.

MAILED

DEC 2 1930

Responsive to amendment filed Nov. 28, 1930.

Claims 13 and 15 are properly rejected for reasons of
 record.

Applicant is again required to cancel the insertion
 after line 8, page 10, for reasons of record.

Claims 16 and 17 are rejected for reasons of record,
 since applicant does not disclose a composite material for use
 in bottle caps.

Claims 18 and 20 are properly rejected as applicant's
 disclosure is not sufficient to support the "insoluble film of
 varnish" referred to in these claims.

Claim 19 likewise is rejected as there is no basis
 herein for applicant's claim for an alcohol resistant film of
 varnish.

Some resins are entirely soluble in alcohol and some
 partly, and a few nearly insoluble. It is necessary that the
 proper resin be selected that will mix with China Wood oil.
 Lange has disclosed this composition and applicant has not.
 For this reason applicant will not be allowed claims which refer
 to the character of the varnish.

Claims 21 and 22 are again rejected because of their
 reference to a varnish film resistant to alcohol.

As indicated above, applicant will not be allowed
 claims herein for the function of a varnish where no specific
 varnish was disclosed.

Claim 23 is rejected for reasons of record, i.e., appli-
 cant made no disclosure originally or even now of a specific

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varnish which will be insoluble under stated conditions.

The mere fact that the varnish actually used by applicant is actually insoluble in the liquids and solutions mentioned in the insertion in line 8, page 10, has no bearing on the question as to whether applicant has a right to make the claims. The right to make the claims rests with the disclosure.

Claims 24 and 25 are rejected because of the inclusion of an insoluble film of varnish.

The rejection of claims 26 and 27 on the grounds stated in the last office letter, i.e., that they are drawn to a liner material as a separate identity is withdrawn.

Claims 26 and 27 are properly examinable in Division 40.

Claims 15, 18, 19, 20, 24 and 25 are FINALLY REJECTED.

Limit of appeal under ex parte Weber & Woodford C.D.

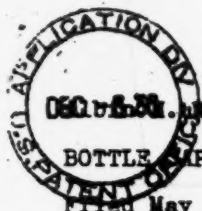
1919 p. 65 - December 23, 1930.

J. H. White
Examiner.

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IN THE UNITED STATES PATENT OFFICE

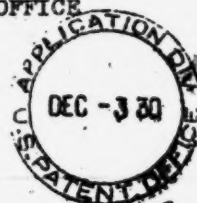


Oscar M. Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895.



Div. 56.

16/E + aff
not sent

December 3, 1930

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

In response to the Official action of Dec. 2, 1930,
kindly amend the above entitled application as follows:

IN THE SPECIFICATION

Page 10, line 6 cancel the amendatory matter inserted by
the amendment of October 31, 1930, and substitute:-- A varnish
compound of this character provides a film which is insoluble.
By insoluble, I means a film which will resist the action of
acetic acid, citric acid, tartaric acid, and carbonic acid,
in such proportions as these acids are usually found in bev-
erages ordinarily obtainable for human consumption. It also
is resistant to alcohol in such percentages as alcohol is or-
dinarily found in beverages. As a matter of fact, any such
varnish is insoluble in liquids containing an extremely high
percentage of citric acid, tartaric acid and carbonic acid.
The Chinawood oil is typical of oils which are resistant to al-
cohol and, therefore, causes the varnish to be alcohol resistant
or insoluble.--

IN THE CLAIMS

Claim 16, lines 1 and 2 and claim 17, line 1 cancel "for
use in container caps" and substitute --of the character des-
cribed.--

REMARKS

The Examiner is respectfully requested to reconsider the
final rejection of claims 18, 19, 20, 24 and 25. He is
also requested to withdraw the action upon claim 15, as
well as the limit of appeal, since the question of appli-
cant's right to make this claim in the present case will be

settled by motion in an interference now being declared between another application and the Lange patent 1,758,610.

With respect to claims 18, 19, 20, 24 and 25, the rejection of these claims may be divided into two distinct grounds:

1. Claims 18, 20, 24 and 25 on the ground that applicant does not disclose an insoluble film of varnish, and

2. Claim 19 on the ground that applicant does not disclose an alcohol resistant film of varnish.

These grounds of rejection raise what is primarily a question of fact, namely whether any varnish compounded in the manner described in the specification would be (a) insoluble, or (b) resistant to the action of alcohol. In order that the Examiner may be entirely satisfied as to the propriety of the amendment in the specification (p. 10, l. 6), we present herewith the applicant's affidavit. This affidavit states that any conventional or standard varnish compound of Chinawood oil and a resin, regardless of the character of the resin and the relative proportions of the oil and resin, will be (a) insoluble in acids (acetic acid, tartaric acid and carbonic acid) at least in the percentages these acids are present in the usual beverages, and (b) resistant to alcohol in the percentages alcohol is present in beverages. As a matter of fact, the affidavit shows that any such varnish composition will resist tartaric acid and carbonic acid, regardless of the percentage of acid present.

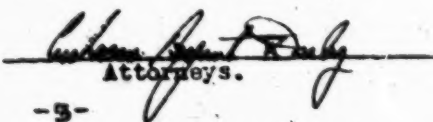
We believe that in view of the decision of the Court of Appeals in re Coley 401 Q. G. p. 4 (Dec. 2, 1930), the Examiner will now concede that applicant may properly describe the composition disclosed in the specification as an insoluble or alcohol resistant varnish. It is re-

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requested, therefore, that an interference be promptly declared between this application and the Lange patent 1,779,884, and it is believed that this interference should involve as counts claims 1, 2, 3, 8 and 9 of said patent.

JJD:U

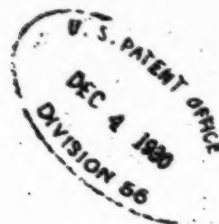
Respectfully,


Attorneys.

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IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & THE METHOD
OF MAKING SAME,

Filed May 6, 1929,

Serial No. 360,895,

Div. 56.

DISTRICT OF COLUMBIA:SS.

ALBIN H. WARTH, being first duly sworn, deposes and
says:

I am the applicant identified in the above entitled application, and am Chemical Director of the Crown Cork & Seal Company, Inc., assignee of said application. For approximately fifteen (15) years I have been associated with this Company in connection with chemical work, and for approximately thirteen (13) years have been directing the chemical activities of this Company. My work, as a chemist during this period, has had to do, among other things, with the development of materials and compounds used in the coating of caps and of interior facings or liners for caps. One of the principal and most generally used compounds in this work is varnish.

I have read the Official Action of December 2, 1930, which questions whether the disclosure originally filed supports a claim directed to (a) an insoluble film of varnish, or (b) an alcohol resistant film of varnish.

The specification, as originally signed by me and filed in the United States Patent Office, in referring to the

finish or glaze upon the paper strip states:

"The glazed surface upon the strip d' consists of a waterproof compound consisting of resin, Chinawood oil and a drier, and containing a plasticizer."

My object in providing this glazed surface was to provide an impervious surface for the paper, and as made clear in the specification I was dealing with caps of the type used generally with beverages, such as ginger ale, grape, cider, near bear, citrate of magnesia, etc. Consequently, I provided and sought to disclose in this application a surface coating or varnish which would withstand the action of the acids (acetic, tartaric, citric and carbonic) and also the relatively small amount of alcohol present in such liquids.

I was not concerned with, and make no claim that I disclosed, a varnish composition which would withstand the action of pure alcohol or pure acetic acid. Since I was providing a surface for use in a definite art, namely the capping of liquids, and particularly beverages, I was concerned with, and therefore intended to provide and disclose a varnish composition which would resist the action of acetic acid and alcohol when present in the percentages usually found in such liquids.

Furthermore, I intended to disclose and for the reasons set forth below, did in fact disclose, a composition which would withstand the action of carbonic acid, citric acid, or tartaric acid, regardless of the percentage of these acids present in the capped liquids.

The use of varnish in the cap manufacturing industry, and particularly in the manufacture of crown caps, extends back over a period of not less than fifteen (15) years. Furthermore, varnish has been used to protect the interior

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facing of caps for over twelve (12) years. As a result, the relative proportions of resin and oil in varnish compounds employed in this art have become standardized. They vary from a proportion of one hundred pounds of resin to fifteen gallons of oil, constituting "a short-oil varnish," to a proportion of one hundred pounds of resin to thirty-five gallons of oil, which constitutes a "long-oil varnish". In view of these standardized proportions, anyone skilled in this art, if instructed to prepare a varnish from resin and Chinawood oil, would naturally employ proportions within this range.

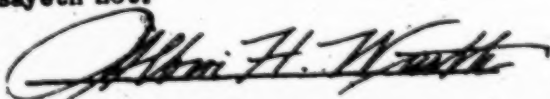
I aver, as a fact based upon my own experiments and observations, that a varnish consisting of any resin whatsoever, Chinawood oil and a drier, regardless of the proportions used within the standard range customarily employed in this art, would be insoluble when used with beverages containing citric acid and carbonic acid. Furthermore, any such varnish would be insoluble in beverages of the character above identified containing the usual proportions of tartaric and acetic acid.

With respect to the alcohol insolubility of any such varnish, I aver that it would be insoluble in beverages containing alcohol in the percentages ordinarily found. In this connection, I aver such varnishes will resist alcohol in percentages far exceeding the percentage of alcohol ordinarily present in beverages of the character identified, since these beverages are by law limited to and have an alcohol content not in excess of one-half of one percent by volume. While it is true that some resins are soluble in alcohol, it is to be observed that the composition specified in my application includes Chinawood

oil which is insoluble in alcohol and, therefore, this oil when combined with an alcohol soluble resin makes the varnish coating resistant to alcohol and insoluble in such percentages of alcohol as are present in the usual beverages.

Therefore, it is my opinion, based upon work in this art extending over the period above mentioned, that any one skilled in the art, upon reading the sentence in my specification which I have above quoted, would prepare a varnish composition which is for all practical purposes insoluble in the various acids mentioned, insofar as use of the varnish in the capping of beverages or similar liquids is concerned. And I aver that anyone skilled in the art and with the use of varnishes for the purpose explained, would recognize that a varnish compound of the character described, is provided for this acid and alcohol resisting purpose.

Further Deponent sayeth not.



Subscribed and sworn to before me, a Notary Public,
this third day of December, 1930.


Notary Public.

Seal.

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Div. 56 Room 311
Address only
The Commissioner of Patents,
Washington, D. C.,
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 17
All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

Please find below a communication from the EXAMINER in
charge of this application.

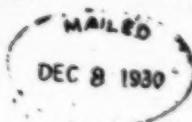
Dec. 8, 1930.

Thomas E. Robertson
Commissioner of Patents

Applicant: A.H. Warth

Cushman, Bryant & Darby
Washington Loan & Trust Bldg.,
Washington D. C.

Ser. No. 360,895
Filed May 6, 1929
For Bottle Caps and the Method
of Making Same.



Responsive to amendment filed Dec. 3, 1930.

In view of the argument and affidavit filed with
the amendment, the limit for appeal, set under Weber and Woodford, is
withdrawn.

An interference involving this application will be
prepared.

J. V. Chandler
act Examiner. Div 56

TITLE REPORT

S. No. 360895

Name *A. H. Warth*

The title appears from the assignment records to be vested in:

Crown Cork & Seal Company Inc

Examined up to and including *Dec 1, 1930*

This certificate dated *Dec 10, 1930*

Willis A. Maynard
Chief of Assignment Division

No further assignments appear to have been received for record including

Dec 11, 1930

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INTERFERENCE.

Interference No. 60981 Paper No. 18
Name, Albin H. Warth
Serial No. 360,895
Title, Bottle caps and the method of Making Same.
Filed, May 6, 1929
Interference with Louvern G. Lange

DECISIONS OF

EXAMINES OF INTERFERENCES

<p> NEW OF INTERFERENCES Primary Examiner, </p>	<p> Interference dissolved </p>	<p> Dated, May 9/31 </p>
<p> Ext'r of Interferences, </p>	<p> Favorable </p>	<p> Dated, Aug 22/30 </p>
<p> Board, </p>	<p> Affirmed in part </p>	<p> Dated, Sep. 28/31 </p>
<p> (Commissioner, </p>	<p> Dissolved on recommendation of (S. J. Hunt) </p>	<p> Dated, April 9, 1932 </p>
<p> REMARKS: </p>		

Aug 24/32 Inty reopened
Aug 26/32 Inty rest

This should be placed in each application or patent involved in interference in addition to the interference notice by Primary Examiner.

58/22

Address only
The Commissioner of Patents
Washington, D. C.,
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 19

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

Copy to Assignee

Please find below a communication from the EXAMINER in
charge of this application

Thomas E. Robertson
Commissioner of Patents

U. S. PATENT OFFICE

DEC 12 1930

MAILED

Applicant: Albin H. Warth

Cushman, Bryant & Darby
Washington Loan & Trust Bldg.,
Washington, D.C.

Ser. No. 386,895

Filed May 6, 1929

For Bottle Caps &
Method of Making Same.

The case, above referred to, is forwarded to the Examiner
of Interferences because it is adjudged to interfere with others,
hereafter specified. The question of priority will be determined
in conformity with the Rules. The interference will be identified

as No.

60931

On or before

JAN 19 1931

the statement demanded by rule 110 must be sealed up and filed
with the subject of invention, and name of party filing it,
indorsed on the envelope. The subject-matter involved in the
interference is

Count 1. A composite material of the character described
comprising a layer of sheet material, an insoluble film of
varnish adhering to one surface of said layer of sheet material,
a layer of resilient material, and a waterproof adhesive bond-
ing said resilient material to the other surface of said layer
of sheet material, whereby the adhesive is protected from the
action of solvents by the film of varnish and a composite
material impervious to moisture is formed.

Count 2. A composite material of the character described
comprising a layer of sheet material, an alcohol resistant
film of varnish adhering to one surface of said layer of sheet
material, a layer of resilient material and a waterproof ad-
hesive bonding said resilient material to the other surface
of said layer of sheet material.

Count 3. A composite material of the character described
comprising a layer of sized paper, an insoluble film of
varnish adhering to one surface of the paper, a layer of
resilient material, and a film of waterproof adhesive bonding
said resilient material to the other surface of the paper,
whereby the adhesive is protected from the action of solvents
by the film of varnish and a composite material impervious to
moisture is formed.

Count 4. A composite material of the character described
comprising a layer of sheet material, an insoluble film of
varnish adhering to one surface of said layer of sheet material,
a layer of resilient material and a waterproof adhesive
comprising gutta percha bonding said layer of resilient material
to the other surface of said sheet material, whereby the adhesive
is protected from the action of solvents by the film of varnish
and a composite material impervious to moisture is formed.

Count 5. A composite material of the character described com-
prising a layer of sheet material, an insoluble film of varnish
adhering to one surface of said layer of sheet material, a layer

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Ser. No. 360,895 - 2.

of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

The interference involves your application above identified and a patent for Composite Material for Containers, No. 1,779,884, granted Oct. 28, 1930 to Louvern G. Lange, whose post-office address is c/o Standard Insulation Company, East Rutherford, New Jersey, whose attorneys are Pennie, Davis, Marvin and Edmonds, 165 Broadway, New York, N.Y.

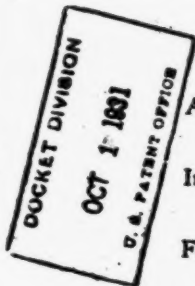
The relation of the counts of the interference to the claims of the respective parties is as follows:

COUNT	LANGE	WARTH
1	1	18
2	2	19
3	3	20
4	8	24
5	9	25

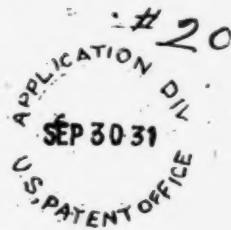
F. J. Porter
Examiner.

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ap Bd



Applicant: Albin H. Warth,

Invention: BOTTLE CAPS & METHOD
OF MAKING SAME,

Filed: May 5, 1929,

Ser. No. 360,895,

Interference No. 60,931

HON. COMMISSIONER OF PATENTS,

SIR:

We hereby substitute as attorneys in the above named case, Messrs.
Cushman, Bryant, Darby & Cushman, a firm composed of Arlon V. Cushman,
Arthur L. Bryant, John J. Darby and William M. Cushman (Reg. No. 7196),
American Security Building, Washington, D. C.

Respectfully,

Cushman Bryant Darby

Sept. 30, 1931

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PAPER No. 21
AMENDMENT

21
(insert)

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD
OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,695

Div. 58

* * *

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following
amendments in the above entitled application.

IN THE SPECIFICATION

Page 1.

Line 12, after "disk" cancel the remainder of the
sentence, including the "comma" and substitute --of smaller
diameter than the cushion disk.--

Line 18, after "facing" insert --center--.

Page 2.

Line 18, before "insoluble" insert --water--.

Line 22, after the period insert the following: --A
medium which is itself elastic or resilient, such as gutta percha,
is preferred, since the same will provide an elastic cushion for
the fibrous disk and thereby minimize the danger of rupturing the
latter.--

Page 4.

Line 2, cancel "or" and substitute --, such as a relatively hard, high-gloss or water-finish paper provide with a coating of resistant varnish, said disk being--.

Line 3, before "insoluble" insert --water--.

Line 4, after "material" insert --, such as gutta percha,--

Page 5.

Line 26, after "tin" and before the comma insert --or aluminum--.

Page 6.

Line 5, after the period, insert --Aside from the expense of caps provided with foil spots, their use has been extremely limited, due to the fact that foil is not sufficiently resistant to acids and alkalies.

I am aware that it has heretofore been proposed to provide a cap with a center spot of paper, and that this is broadly covered in the patent to McManus, No. 1339,066, granted May 4, 1920. The present invention constitutes an improvement upon the subject matter of said patent.

The use of center spots of paper on a commercial scale has not heretofore been economically practicable for several reasons. First, paper has a tendency to absorb liquids and gases and to impart a taste to and discolor many beverages. Moreover, upon absorption of moisture, the paper tends to rupture and expose the cushion material which it overlies. Again, the difficulty of applying a center spot of paper to the cushion disk presents problems altogether different from the use of a facing disk co-extensive with the cushion disk, as for example the facing disclosed in my patent 1,656,614, granted June 17, 1928. A facing which completely covers the cushion disk may be readily united adhesively to the sheet or blank from which the cushion disk is stamped, or in other words, the facing sheet and cushion

sheet are united adhesively, and the laminated disks punched therefrom. But in applying a formed center spot, as distinguished from a sheet, due to the fact that it is necessary to absorb the moisture in the adhesive; and as heretofore explained, during the period of moisture evaporation the spot tends to become displaced. This has presented a problem in large scale production, which manufacturers have not heretofore overcome.

Furthermore, due to the moisture and gas absorbent properties of paper, the exposed edge of the paper spot is of an area which cannot be protected by a facing, such as foil or varnish, since the spot is punched from sheets. This objection I have overcome by using a combination consisting of paper of the character described and a liquid and gas resistant fusible adhesive.

I have found that by using a paper of the character herein described, namely a tough paper having a hard or high-gloss finish, for example, such as is termed a water-finish, the same will not fracture, has an inherent resistance to liquids and gases and serves as an excellent carrier for an exposed or outer facing of varnish and for a backing layer of water-insoluble, heat-fusible and acid and gas-resistant adhesive. I prefer an adhesive having these characteristics and which is also elastic so as to provide an elastic or cushion backing for the varnish layer and the rupturable paper layer.

Extensive commercial use of this new cap has established that it is resistant to acids and alkalies and, therefore, useful in connection with liquids with which a foil spot cannot be employed, and that it is at the same time substantially less expensive than a foil spot cap. Moreover, it does not present the mechanical difficulties which are present in applying a foil center spot. The hard, tough paper serves as an excellent carrier for the varnish film as well as for the gutta percha and insures co-extensive varnish and gutta percha films. The gutta percha serves not only as a medium for uniting the paper and varnish films to the cushion layer, but

constitutes an acid and gas-resistant, water-insoluble, backing layer, thereby preventing moisture, acids or gases which penetrate the varnish film or paper from attaching the cushion layer. Moreover, the use of a hard paper having a water-finish or high-gloss permits the use of even films of varnish and gutta percha, since the paper does not absorb either the fused gutta percha or the varnish to any appreciable extent. Consequently, it is unnecessary to employ more varnish or thicker gutta percha than is required to cover completely the surfaces of the paper.--

Line 9, cancel "water-leaf finish" and substitute --water-finish, i. e., high gloss finish,--.

Page 10.

Line 5, cancel "e'" and substitute --d'--.

Line 7, after "paper", insert --which has a high gloss or water-finish--.

IN THE CLAIMS

Cancel the claims and substitute:

copy c
--28. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid-resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

29. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of heat-fusible, acid resistant and water insoluble adhesive material coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.

30. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

31. A bottle closure comprising a metallic shell, a cushion disk in said shell, a facing disk of hard, high gloss paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and adhesively uniting the two disks.

32. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of express paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.--

33. A bottle closure comprising a metallic shell, a cushion disk facing said shell, a facing disk of water-finish bleached kraft paper having a varnished outer surface, said disk being of smaller diameter than and concentric with said cushion disk, and a stratum of gutta percha coextensive in area with the facing disk between the latter and the cushion disk and uniting the two disks.--

REMARKS

This application, as amended, is presented for consideration, and in addition to the patents of record, applicant's attorneys desire to place of record the following patents:

	1,656,614, Warth,	Jan.	27, 1928,
	1,339,066, McManus,	May	4, 1920,
	603,106, Lindemeyr,	April	26, 1898,
	849,960, Batchelder,	April	9, 1907,
French	463,971, Montaner & Co.	of	1914,
French	415,794, American Cord		
	& Seal Co.,	of	1910,
French	413,841, Premier Bottle		
	Seal Co. Ltd.	of	1910,
British	26,297, MacCormick et al.,	of	1909,
British	16,075, Demuth	of	1914.

In order that the Examiner may have before him a complete statement by one who has been actually engaged in the development of the art, we are filing herewith the applicant's affidavit, supported by other affidavits having to do with the facts of commercial acceptance of the invention which are referred to in the Warth affidavit.

As pointed out in the affidavit, applicant has been engaged in development work in the cap art since 1915, and there is probably no one in the United States, or in fact in any country, who has devoted more time to the technical development in connection with the cap industry. It is believed that, in view of the affidavits, little or no comment is required by counsel upon the prior art. Notwithstanding the general reference in a number of prior patents, including the patent to McManus (1,339,066), to the use of a spot and the vague and general disclosures in the numerous foreign patents, the fact remains that no one contributed the final steps necessary to produce a paper spot cap acceptable to the trade and which could be manufactured on a commercial scale economically, until the applicant devoted his energies to this work. And when all is said and done, it is impossible to

escape the proposition that even the applicant, although experienced for over ten (10) years in this particular art when he began development work, and with all the resources and technical assistance of the Crown Cork & Seal Co. available, succeeded in producing the completed article and establishing it on a commercial basis only after a period of three (3) years intensive work. The results of this work speak for themselves. The inadequacy of the aluminum and tin foil center spot caps had been recognized for years. Tin foil spot caps could only be used with waters and alcoholic liquors. They could not be employed to cap materials containing acids or alkalies and salts in more than very dilute solutions. Aluminum spot caps were unfitted for acidulated drinks or alkali and salt containing liquids. The result was that for years users of crown caps had been employing for the capping of acidulated liquids, such as vinegar, cider, ginger ales, vegetable juices and fruit juices, either (a) the very expensive crowns containing natural cork disks, or (b) the somewhat less expensive but more unsatisfactory crowns containing composition disks, i. e., granulated cork and a binder.

The fact that the large users of the composition cork disks turned immediately to the crown of the present invention, although from 20 to 25% more expensive than the composition cork disk, is conclusive evidence that applicant's contribution to the art is indeed an important one. Among manufacturers who paid more for this article and in whose business the invention supplanted the crown containing the composition cork disk, are the Hoffman Beverage Company, of Newark, New Jersey, which has used over 50,000 gross of paper spot crowns per year since 1928, The Moxie Company of America, and the May Bottling Company of Baltimore. Over a score of former users of the cheaper composition cork crown, without a facing, could be mentioned all of whom have turned to exclusive use of the paper spot cap described in this application.

Among the large distributors in the United States in whose business this invention has supplanted the natural cork crown which was from 20 to 25% more expensive to both the bottler and the manufacturer, can be mentioned the Clicquot Club Company and the Canada Dry Ginger Ale Company. Both of these companies have used the cap of this invention almost exclusively since 1929.

And the outstanding fact is that, in every instance, the crown was adopted by these companies practically without solicitation and without advertising or sales pressure of any kind. Each company was simply submitted samples of the invention and permitted to test the same over a period of from four (4) to six (6) months. The result was that the invention was adopted by these companies of their own volition as a contribution to the art superior to anything previously available. And in many instances, e. g., Hoffman and Moxie, the article was purchased at a price substantially higher than the price paid for the crowns previously used.

The fact that applicant's invention has made possible a saving of from 20 to 25% in the cost of manufacturing caps suitable for the bottling of high grade ginger ales, such as Clicquot and Canada Dry, is, of itself, strong evidence of invention; particularly in view of the further fact that the manufacturers have quickly adopted the product. But this is not all. Not only may the product be manufactured at a substantial saving in cost, but it is far superior to the more expensive natural cork disk. It does not impart taste to beverages, such as ginger ale, and, therefore, avoids the loss of large volumes of bottled product as frequently occurred when crown caps with natural cork disks were used. Consequently, manufacturers were willing to pay a premium of from 20 to 25% for the paper spot cap produced by applicant to supplant the composition cork crown.

These are facts which are fully set forth in the accompanying affidavits, and need no discussion by counsel.

PRIOR ART

Of the prior patents of record, it is thought that none is more pertinent than the patent to McManus (1,339,066). The patentee, McManus, is the President of the Crown Cork & Seal Company, Inc., assignee of the present application. Although his patent discloses broadly the use of a center spot of paper and mentions the paper disc as one "made of a hard parchment paper, or any other paper so treated as to make it non-absorbent", the affidavit of the applicant shows that, notwithstanding this disclosure, there remained a final contribution to be made to this art in order that paper spot caps for the sealing of many beverages or materials with which metal foil spots could not be used remained to be developed. After a period of experimental work extending over several years, applicant accomplished this result and gave the world the product for which the groundwork had been laid by McManus. But the final steps and those which made the product a commercially useful and successful one were those of the applicant.

Admittedly, applicant's invention is an improvement upon the basic development of McManus; but that does not negative invention. The cases are numerous where an inventor utilizing the broad ideas disclosed by an earlier worker in the art has made the device more successful and established the same on a firm commercial basis.

"Devices and publications leading up to, but not fully accomplishing, a desired end, do not anticipate an invention which for the first time effectively meets all requirements and successfully accomplishes such end." Truax v. George F. Childs Adjustable Parlor Chair Co., 152 F. 709 (III).

Furthermore, it is true that the materials of applicant's product are old, per se, but it is undeniable that applicant, by a selection of old elements, has produced a new combination and has accomplished results which heretofore had not been ac-

completed. The established commercial success of this invention which has been adopted by practically all leading manufacturers in place of both more expensive and less satisfactory articles theretofore available and in place of less expensive and less satisfactory articles, establishes the invention as well entitled to the liberal treatment held proper by the Supreme Court in Eibel Process Company v. Minn. and Ontario Paper Co., in which Chief Justice Taft, speaking for the Court said:

"The fact that in a decade of an eager quest for higher speeds this important chain of circumstances had escaped observation, the fact that no one had applied a remedy for the consequent trouble until Eibel, and the final fact that when he made known his discovery, all adopted his remedy, leave no doubt in our minds that what he saw and did was not obvious, and did involve discovery and invention."

When all is said and done, the following facts remain as undisputed.

1. In the face of the disclosures in the prior art no one had provided a cap which would overcome the defects of the expensive natural cork crown disk which alone was useful, although feebly so, in connection with the bottling of acidulated liquids or the defects of the less satisfactory and somewhat less expensive cork composition disks.
2. The industry had for years prior to this invention recognized the limited field of usefulness and the almost prohibitive expense of the metal foil "center spot" caps.
3. Although applicant had before him the disclosures of the prior art, the development of this invention required a long period of experimental work.
4. There is no reference which discloses the combination of elements defined in the claims, and no reference discloses a cap which could be commercially used either in place of or in competition with the cap of applicant's invention.
5. This invention, when offered to the trade by applicant's assignee, the Crown Cork & Seal Company, was immediately adopted, and it supplanted caps previously used for the same purposes. In this field, it was universally found more satisfactory than the more expensive natural cork caps and it was universally adopted as more satisfactory than the less expensive composition cork crowns previously used.

Under these circumstances, we submit that to this case very aptly applies the language of the Supreme Court in Diamond Rubber Company v. Consolidated Rubber Tire Co., 220 U. S. 428. In that case the Court said:

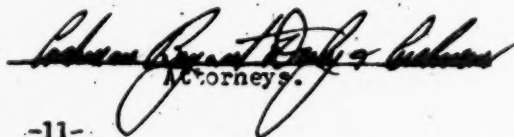
"Knowledge after the event is always easy, and problems once solved present no difficulties, indeed, may be represented as never having had any, and expert witnesses may be brought forward to show that the new thing which seemed to have eluded the search of the world was always ready at hand and easy to be seen by a merely skillful attention. But the law has other tests of the invention than subtle conjectures of what might have been seen, and yet was not. It regards a change as evidence of novelty, the acceptance and utility of change as a further evidence, even as demonstration."

The fact that this invention has supplanted the prior art devices makes particularly pertinent the statement of the Court of Appeals in in re Thomson C. D. 1906, p. 566:

"The testimony going to show the practical success of the applicant's combination, the truth of which is substantially conceded, is entitled to material weight. Owing to the very serious difficulties, which appear to have been successfully overcome by the applicant, other electrical train-lighting systems have not gone into general use. The demand for an improved system has been an urgent one for years, and yet no other inventor, or electrical expert, with all the knowledge afforded by prior patents and constructions, has succeeded in devising a system answering this demand. It may be laid down as a general rule, though perhaps not an invariable one, that, if a new combination and arrangement of known elements produced a new and beneficial result never attained before, it is evidence of an invention."

Respectfully,

JJD:U


Attorneys.

Ltr
#22

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD
OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895

Div. 62.

* * *

CITY OF BALTIMORE)
 : ss.
STATE OF MARYLAND)

Albin H. Warth, being first duly sworn, deposes and
says:

I am the applicant identified in the above entitled
application for patent and am of legal age.

Since approximately 1916, I have been chemical director
in charge of the laboratory of the Crown Cork & Seal Co., Inc.
and its predecessor Crown Cork & Seal Co. of Baltimore City.

Among my duties have been the testing of materials furnish-
ed for the manufacture of crown caps and the development of new
materials for the manufacture of caps as well as the development
of new types of caps and closures.

Since 1924, I have given particular attention to the
development of crown caps of the center spot type. This type
of cap consists of a metal shell having the usual cushion disk
therein, and the cushion disk is faced by a disk of protecting
material united to the cushion disk.

Prior to the development of the invention disclosed in my
above entitled application, crown caps consisted of the follow-
ing types:

1. Caps having a cushion disk of natural cork.
2. Caps having a cushion disk of granulated cork and a binder.
3. Center spot caps, i. e., embodying a composition or natural cork disk provided with a facing disk of smaller diameter than the cork disk.

The invention of the present application relates to the third type of cap. Before the invention of this application, center spots were formed from only two materials, namely (a) tinfoil and (b) aluminum foil. Spots of metal foil, were the only spot caps commercially available. Although the trade generally was desirous of obtaining "center spot" caps for numerous materials, the use of the tin and aluminum spots was very limited. In the first place, such caps were almost prohibitively expensive, and the handling of metal foil presented many mechanical difficulties due to its flimsy and inelastic character. Moreover, the tin spot had a very limited field for use, being not at all resistant to acids or acidulated liquids, and resistant to only very dilute alkalies and salts. The aluminum spot was also limited in its application, being non-resistant to acids, except weak inorganic acids in solutions not in excess of two-tenths of one per cent, and non-resistant to alkalies or salts in any strength, even as low as one-half of one per cent. Moreover, the aluminum spot tends to decolorize the material within the capped vessel, such as the natural pigments of fruits and vegetable juices.

As a result of the limited applicability of the metal foil center spot caps, it was necessary for bottlers and manufacturers generally to use caps of very expensive character, and which contained a cushion disk of natural cork. Caps having natural cork cushion disks before the present invention were from twenty to

twenty-five per cent more expensive than even foil center spot caps. Notwithstanding this additional expense, natural cork disks were very unsatisfactory in connection with many materials, particularly those which are highly carbonated, such as gingerale. Yet the principal manufacturers or bottlers of high grade products did not have available for beverages, such as gingerale, or acidulated or alkali containing liquids, any cap more satisfactory than the cap provided with a cushion disk of natural cork. Many bottlers or manufacturers of less prominent brands used for such liquids or beverages, caps having a composition cork disk, i. e. granulated cork and a binder. Such caps were useful where the beverages were used after bottling within a reasonable time, and would retain purity and clarity over relatively short periods such as up to six weeks. These composition cork caps were somewhat less expensive than the center spot caps and were obtainable at from twenty to twenty-five per cent less than the center spot caps.

Generally, therefore, there was available in the trade at the time of the invention of this application for the capping of acidulated, alkali and salt containing liquids, only the natural cork cushion disk caps or the composition cork cushion disk caps. These caps were used, although unsatisfactorily, in connection with fruit juices, vegetable juices, gingerale and on many acidulated beverages for export purposes, although in the latter, due to the necessity for long holds, only the natural cork disks could be used.

Aside from the expensive character of the natural cork caps, the matter of defective caps due to the difficulty of obtaining sufficiently high grade cork, which became obtainable with greater difficulty as the use of crown caps increased, another very serious objection was the inability to avoid imparting of taste to many beverages. This was due to the tannic acid in the cork and

residues of the bleaching materials employed in preparing the cork. I recall one large customer of the Crown Cork & Seal Co. who in one instance had to destroy several thousand dollars worth of gingerale in Baltimore City because the natural cork risks, although the most expensive and unquestionably the best cap available at the time, imparted such an objectionable taste to the gingerale that it could not be sold. This expense had to be borne by the Crown Cork & Seal Co. as the manufacturer of the caps. Faced with this situation, I began to develop a center spot cap which could be used in the capping of fruit juices, vegetable juices, cider, vinegar and generally in the capping of acidulated liquids or materials with which the tin and aluminum center spot cap could not be used.

Although crown caps had been manufactured with a paper facing blank before that date, as disclosed for example in my patent 1,656,614, the manufacture of a crown with a paper "center spot" presented many difficulties which the several years of manufacture of an over-all paper facing did not help to solve.

First, although paper of the center spot cap would appear to be less likely to rupture or fracture because it leaves an exposed surrounding area of the cushion material for direct engagement with the container, I found that the danger of rupture of the center spot was equal to, if not greater than, the danger of rupturing the over-all paper facing disk. This problem of fracture or rupture is one which I had never completely overcome, although the Crown Cork & Seal Co. had for many years manufactured for general use a crown cap having a paper facing completely covering the cushion disk.

Secondly, the center spot of paper presented a free edge of paper which was necessarily uncovered and exposed as dis-

tinguished from the protected edge of the paper facing which completely covered the cushion disk. Extended experiments showed that this exposed edge of the paper absorbed moisture and gases, thereby causing the paper under the high pressures to which it is subjected in the capping operations to rupture; and in many instances, if actual rupture did not take place, the paper became so permeated with gases and moisture as to permit the contents to attack, though the paper, the cushion disk.

Third, in addition to these problems of developing a paper spot which was substantially fracture-proof and impermeable to acids and gases, there was presented the problem of providing a paper spot which would not impart taste to liquids and beverages, particularly of a character in which any foreign taste became immediately objectionable. This is particularly true with respect to gingerale. There was also the problem of developing, particularly for high pressure beverages or liquids, such as gingerale, a complete or finished center spot of the proper thickness. Although as before explained, crown caps had been provided with a paper facing completely covering the cushion disk, such use over a period of several years contributed little or nothing to the problem of producing a paper center spot. Papers having a thickness of substantially .004 had been used in this connection, but were found entirely unsatisfactory for center spots with highly carbonated or high pressure beverages for the reason that it was found the beverages quickly penetrated this paper. On the other hand, I found that papers having a thickness in excess of .007 were too inflexible and would not produce a satisfactory seal, and it was only after extensive experiments that I determined upon a critical thickness for paper spots, of .005 to .0065, particularly when such spots are intended for capping high pressure liquids.

In addition to the foregoing problems which had to do with a cap for general use, it was necessary to arrive at their solution with due consideration to the question of manufacture, since it was necessary to place an article of this nature upon the market within the range of price of caps already available. Obviously, the manufacturing problems which the article presented, had to be solved without a material increase in the manufacturing cost from the standpoint of manufacturing operations. It was found that the final determination of the character of materials to be used in the manufacture of the paper center spot cap had to take into consideration a change in the established manufacturing methods for center spot caps and to which I refer hereinafter.

Although I was aware that earlier patents had referred to the possible use of a center spot of paper, for example the patent to McManus 1,339,066, granted May 4, 1920, the fact is that there remained to be developed, in view of the problems above mentioned, a paper center spot which would overcome the objections above described and there was required, although I had available the entire laboratory and commercial resources of the largest manufacturers of crown caps in the world, a period of research extending over several years, before I was able to produce a crown cap having a center spot generally useful for the capping of materials for which the tin and aluminum center spots could not be used. The cap produced is disclosed in the above identified application. First, I found after testing dozens of papers, that only two were suitable. These two papers were characterized by (a) hardness and (b) a water-finish or high gloss finish. They were express paper, which is a water-finish paper, and bleached kraft paper having a water-finish. I found that these two papers had inherently a natural

resistance to the absorption of moisture and gases. I further found that they formed an excellent carrier for a coating of protecting or resistant varnish which I had applied to the absorbed surface of the paper.

I further found that even these papers, notwithstanding their natural resistance to liquid and moisture, and, therefore, their reduced tendency to rupture, could not be used satisfactorily with an ordinary adhesive for uniting the same to the cushion disk. Previous to my invention, various types of adhesive had been employed in the cap art, for uniting a facing or spot (metal foil) to a cushion disk. The Crown Cork & Seal Co. had used for many years a mixture of Burgundy pitch and other adhesive materials which constituted an adhesive resistant to liquid. But an adhesive merely moisture resistant was not suitable for a center spot cap. In addition to this adhesive, a large number of other adhesives have been used in the crown cap art, but I found none suitable except the one having the characteristics (a) water-insolubility, (b) heat fusibility, and (c) acid resistance. The only adhesive available at the time having these characteristics I found to be gutta percha, or a mixture of gutta percha and other materials, making the adhesive essentially gutta percha. I discovered that this particular adhesive had another characteristic which made it of extreme value, namely its inherent elasticity which afforded an elastic cushion or backing for the paper. By employing gutta percha, I found that any moisture or gases which tended to permeate the exposed edge of the center disk of paper, notwithstanding the facing of varnish on the paper, or which permeated through the varnish facing, since no varnish is entirely impermeable, prevented the gases or liquid from attacking the cushion disk. As a consequence, the final article used, after approximately three years of experimental work, was a combination of (a) a varnish facing (b) a hard, tough paper having a high gloss or water-finish, e.g. express paper or water-finish bleached kraft, and (c) an elastic,

water insoluble and acid resistant adhesive, such as gutta percha.

The final development of this spot which proved to be satisfactory in use, presented a number of problems from the standpoint of economical production on a commercial scale. As will be understood, manufacturing plants had already installed machines for the manufacture of center foil spots, and it was necessary, therefore, that I design my cap so that it might be manufactured with existing machinery. Consequently, the selection of these materials was made with concurrent tests as to the responsiveness of the materials to the machinery. For example, I found that the use of a heat fusible adhesive with a paper facing presented manufacturing difficulties, not presented in the manufacture of a foil center spot cap, due to the marked difference in the heat conductivity of the varnished paper as compared to the foil. Nevertheless, I found that by using a gutta percha film, only of sufficient thickness to provide a complete coating for the paper, and employing paper not in excess of .007 and of the character described, it was possible by slightly increasing the heat application in the machines to apply the paper spots to the cushion disks in the same machines previously used for the manufacture of foil spot caps. This matter of manufacturing operation required a considerable period of experiment, and it was not until 1923 that the problem had been completely solved, and large scale production on a commercial basis could be instituted, although two sales in 1927, primarily for experimentation had been made. The commercial results obtained by the invention are a matter of record in the Crown Cork & Seal Co.

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Briefly, they were as follows:-

In 1927, three of the largest manufactures of gingerale in the United States, Cliquot Club Co., Canada Dry Gingerale Co. and Gosman Gingerale Co., were using exclusively crown caps having a cushion disk of natural cork. For these caps the said companies were paying from forty to fifty per cent more than less prominent manufacturers were paying for the only other type of crown then used in connection with gingerale, namely, caps having a cushion disk of composition cork. Among the latter were the Hoffman Beverage Co. of Newark, New Jersey, the May Bottling Co. of Baltimore, Maryland, and the Moxie Company of America, of Boston, Massachusetts.

Within a year, or at the most two years, after this invention had been offered to the trade, the users of natural cork disks such as Canada Dry and Cliquot and Gosman, discarded the natural cork disk for the paper spot disk of the present invention and this type of cap has since been used by these companies almost exclusively.

For the new paper center spot cap, these manufacturers paid from two to three per cent less than the natural cork disk and found the center spot cap much more satisfactory. It represented, therefore, a substantial saving both to the bottler and to the manufacturer.

Not only did the former users of natural cork disks turn to the center spot cap, but the same very largely supplanted the composition cork disk, although the paper center spot cap sold to the users of the composition cork disk at a price forty to fifty per cent higher than they had been previously paying for the composition cork disk. For example, in the year 1927,

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Crown Cork and Seal Co. sold exclusively to the Hoffman Beverage Co. of Newark, New Jersey, composition cork disks. In 1928, the Hoffman Beverage Co. purchased over fifty thousand gross of paper spot caps, and has continuously used these caps almost exclusively since that date, paying for the same a considerably higher price than they had previously paid for the composition cork cap. The center spot cap supplanted the composition and natural cork caps substantially throughout the gingerale industry by 1930 and it is now the standard cap for all leading brands of gingerale.

Furthermore, in the capping of highly carbonated beverages which are also acidulated, the paper center spot cap of this application has almost completely supplanted the plain natural cork or composition cork cap.

Whether substituted for the formerly higher price natural cork cap crown, as by Cliquot Club, Canada Dry and Gosman, or for the formerly lower priced composition cork crown, as by Hoffman Beverage Co., Moxie Co. and May Bottling Co. of Baltimore, the paper center spot cap has in every instance been found to be superior to both of the previously used types of crowns.

In the introduction of the paper center spot crown, the Crown Cork and Seal Co. has done virtually no advertising; the article has sold itself. Aside from one or two formal announcements in trade papers that the Crown Cork and Seal Co. was manufacturing paper spot crowns, there has been no advertising of this article. Its adoption by the manufacturers mentioned above, and numerous others, was the result of merely submitting to each manufacturer a few sample caps with the request that they test the same. They were tested by the Cliquot Club Co. and the Canada Dry Gingerale Co. over a period of six months

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before being adopted and were then ordered without further solicitation on the strength of the tests conducted by these Companies. The same statement applies to the adoption of this article by other large manufacturers of acidulated beverages and of other beverages with which the tin spot and aluminum spot cap could not be used.

Further deponent sayeth not.

Alvin H. Walth

Baltimore, Maryland

April 21st, 1932

Subscribed and sworn to before me, this 21st day of April, 1932.

Horace W. Vickers
Notary Public

MY COMMISSION EXPIRES MAY 1 1936

(SEAL)

1647

Affidavit

23

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD
OF MAKING SAME,

Filed May 5, 1929,

Serial No. 360,895.

Div. 62.

* *

CITY OF BALTIMORE)
:SS.
STATE OF MARYLAND)

FREDERICK E. FOSTING, being first duly sworn, deposes and says:

That he is Vice-President of the Crown Cork & Seal Company, Inc., having its plant in Baltimore, Maryland, and has been an officer of said company and of its predecessor company, The Crown Cork & Seal Co., of Baltimore City, for over fifteen (15) years.

That he is familiar with the disclosure in the above entitled application which covers the so-called "paper spot" crown first marketed by the Crown Cork & Seal Company, Inc. on a commercial scale in 1928.

That for many years prior to 1925 there had been widely recognized in the crown cap industry a need for a crown cap which would be useful in the bottling of many materials with which "spot crowns" theretofore manufactured could not be employed. Prior to 1925, the only center spot caps available were provided with spots of either tin foil or aluminum foil. These caps could not be employed with acid containing materials, such as fruit juices and ginger ale. For such products it was customary for bottlers to employ crowns having a cushion disc of either (a) natural cork or (b) cork composition material.

The natural cork disc crowns were objectionable because of their very high price and the difficulty in obtaining suit-

able natural cork, particularly for capping high pressure beverages, such as ginger ales. The cork composition disc crowns were even more unsatisfactory.

Prior to 1928, aside from two experimental sales, the Crown Cork & Seal Company had not manufactured a paper spot crown, and to deponent's knowledge no other manufacturer of crown caps had manufactured a cap having a center spot of any material other than foil.

Referring, for example, to the bottlers of ginger ales, such as Canada Dry Ginger Ale and Clicquot Club, these manufacturers prior to 1928 employed crowns having therein discs of natural cork. For these crowns they paid from 26½ to 28½ cents per gross. Yet these crowns, notwithstanding their high price, were not satisfactory. In 1924 the Gosman Ginger Ale Company, of Baltimore, Maryland, met with the loss of a large quantity of bottled ginger ale, due to unsatisfactory crowns of natural cork, and this resulted in a total loss of over Six Thousand Dollars (\$6,000.).

Other manufacturers of ginger ale were using crowns having a disc of cork composition and for the same were paying from 17½ to 18½ cents per gross. These crowns were also recognized as not satisfactory. But aside from the natural disc crowns which were considerably more expensive, there were no other crowns on the market even reasonably suitable.

In 1928, when the Crown Cork & Seal Company, Inc., began commercial manufacture of the "paper spot" crown of the above entitled application, over sixty-four thousand (64,000) gross of these crowns were sold. They supplanted in use during 1928 principally the previously used composition cork disc crowns. The users of the new paper spot crown in 1928 paid for the paper spot

crowns 40% more than they had previously paid for the composition cork disc crowns.

In 1929 the Crown Cork & Seal Company, Inc., shipped over one hundred thousand (100,000) gross of paper spot crowns. During that year they supplanted not only the composition cork crowns, but, to a very large extent, the natural cork disc crowns. They were sold to the former users of the natural cork disc crowns at a very slightly lower price than the natural cork disc crowns.

In 1930 the Crown Cork & Seal Company, Inc., sold over two million one hundred thousand (2,100,000) gross. In 1931 the Crown Cork & Seal Company, Inc., sold approximately two million (2,000,000) gross of paper spot crowns.

By 1931, such companies as Canada Dry, Clicquot Club Company, Gosman Ginger Ale and the Moxie Company of America, had adopted the paper spot crown almost exclusively in place of the previously used natural cork disc crowns. Other companies, such as the Stroh Products Company, The C. E. May Company and the Hoffman Beverage Company had adopted the same instead of the formerly used composition cork disc crowns and at a price approximately 40% higher.

In other words, the new product had almost completely supplanted the old of natural cork disc and composition cork disc crowns by 1931 in the business of the large bottlers of ginger ale in the United States. The product has been marketed with continued success since its introduction in 1928 and is generally recognized by the trade as far superior of any product previously available.

The increase in sale from less than one hundred thousand (100,000) gross in 1928 to over two million (2,000,000) gross in 1930 was accomplished virtually without advertising, and I can find no record of any advertising expense with reference to

the paper spot crown other than one or two simple announcements in trade journals that the company was making at this price. In practically every instance, there was no particular effort made to sell the paper spot crown. The same was merely submitted to companies such as Canada Dry and the Clicquot Club Company. After months of test, these companies adopted the new product of their own volition in preference to the crown they had previously used.

Further deponent sayeth not.

Fredrick E. Suter

Subscribed and sworn to before me this 6th day of May,
1932.

Flora M. Suter
Notary Public

MY COMMISSION EXPIRES MAY 1, 1933

(SRAL)

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1651

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAPS & METHOD OF MAKING SAME,

Filed May 5, 1929,

Ser. No. 360,895.



August 25, 1952

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

Since the interference in which this application was involved has been reopened (60,931), it is requested that certain papers filed subsequent to the dissolution order now vacated, and which have not been formally entered in the application be sealed. The papers referred to are the following:

Paper 21, dated April 20, 1932;

Paper 22, dated April 22, 1932;

Paper 23, dated May 16, 1932.

Respectfully,

APPROVED

AUG 24 1982

Thos. E. Robertson
OWNER OF PATENTS

Washburn, Bennett & Pugh, Attorneys

JJD:U

Div. 62 Room 3876 FWT:GB Paper No. 24

Address only
The Commissioner of Patents,
Washington, D. C.
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

Sept. 29, 1933.

Please find below a communication from the EXAMINER in
charge of this application.

Albin H. Warth
Commissioner of Patents.

Applicant: Albin H. Warth

Cushman, Bryant, Darby
& Cushman,
American Security Bldg.,
Washington, D. C.

Ser. No. 360895
Filed May 6, 1929
For Bottle Caps and the
Method of Making Same.

MAILED
SEP 29 1933

Additional references made of record:

Warth 1,899,783 Feb. 28, 1933 215-39 (113)
Warth 1,899,784 Feb. 28, 1933 215-39 (114)

Claims 1 to 6 and 13 to 27 are rejected on grounds
of disclaimer, based on paper No. 28 filed by applicant in
Interference No. 60,931, in which the applicant was in-
volved. It is stated therein:

"That recently deponent had occasion to examine
the proofs available in support of the case for the
party Warth in this interference, and that to de-
ponent's surprise it was found that the assignee
of the application, Crown Cork & Seal Company of
Baltimore, Maryland, had been manufacturing and
selling caps having therein (a) a cushion liner
(b) a paper facing united to the cushion liner
by (c) a waterproof adhesive, and (d) a varnish
facing on the paper resistant to acids and al-
cohol.

"That deponent has found that this material
has been manufactured and sold by the Crown Cork
& Seal Company, as well as by others in the cap
industry almost continuously since 1915 or 1916."

This statement is held to be an admission against
interest and is binding against the applicant.

Claims 13 to 27 are further rejected on grounds of
estoppel based on paper No. 4, wherein applicant affirms:

"That the invention was reduced to practice by the
manufacture and use of material of the character de-
fined in each count on or about the first day of June,
1915, at Baltimore, Maryland.

"That the material of the character defined in
each count has been made in large quantities since
June 1, 1915."

It is stated in the above material as shown to an obvious

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SHEET NO. 2

Ser. No. 360895.

use for the material which applicant, in his preliminary statement referred to above, has declared to have been "reduced to practice by the manufacture and use", etc., and "made in large quantities since 1915".

Claims 1 to 6 and 13 to 27 are further rejected as unpatentable over the above cited patents to Warth on grounds of double patenting. Attention is directed to the claims of the Warth patents in comparison with the claims of the instant case. No patentable distinction is seen in applicant's present claims over the claims in the Warth patents.

W. W. Cochran

Examiner.

W. T.

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DE 10 1934

OFFICE TELEPHONE: NATIONAL 1700
RESIDENCE TELEPHONE: G FORD 5100✓
DOCKET DIVISION
DEC 11 1934
U.S. PATENT OFFICE*Special*EDGAR J. CLARKSON
PATENTS AND PATENT CAUSES
1426 - G STREET N. W.
607 ALBEE BUILDING
WASHINGTON, D. C.

360 895 - 25

Dec. 11, 1934.

Hon. Commissioner of Patents

Washington, D. C.

Sir:

Please furnish as soon as possible certified
copy of the file wrapper and contents of the follow-
ing application:

L. H. Warth
Ser. No. 360,895
Filed May 5, 1929
Intf. No. 60,931

It is to be noted that this application
was divided and an application filed as a division
Ser. No. 492,546 October 31, 1930, which eventuated
into patent No. 1,899,783 dated Feb. 28, 1933.

Inclosed find \$23.90 to cover the cost
of the above.

Yours very respectfully,

Hauff and Warland
c/o E. J. Clarkson
Box. 350.

*Hauff & Warland**all
R.F.W.**Dec 12/34**m*

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2. Letter (air) Jan 23, 1930	27.
3. Guide Y. Feb 26, 1930	28.
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7. Rev and Power of Atty by Assignment Aug. 29/30	32.
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17. Letter DEC 3 1930	42.
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20. Subj. Power of Atty Sept 30, 1931	45.
21. Amendment F (not) Apr. 20 /32	46.
22. Ref. Apr. 22 /32	47.
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24. Ref. SEP 29 1933	49.
25. Ref. for Ref. granted Mar 11, 1934	50.

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G. E. STAHL.

CLOSURE FOR BOTTLES, JARS, AND OTHER RECEPTACLES.

APPLICATION FILED MAY 10, 1915.

1,215,737.

Patented Feb. 13, 1917.

Fig. 1.

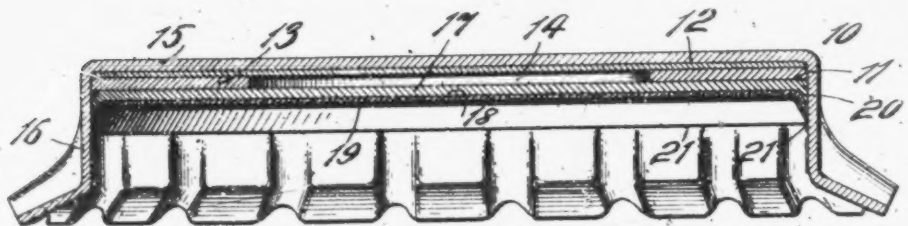


Fig. 2.

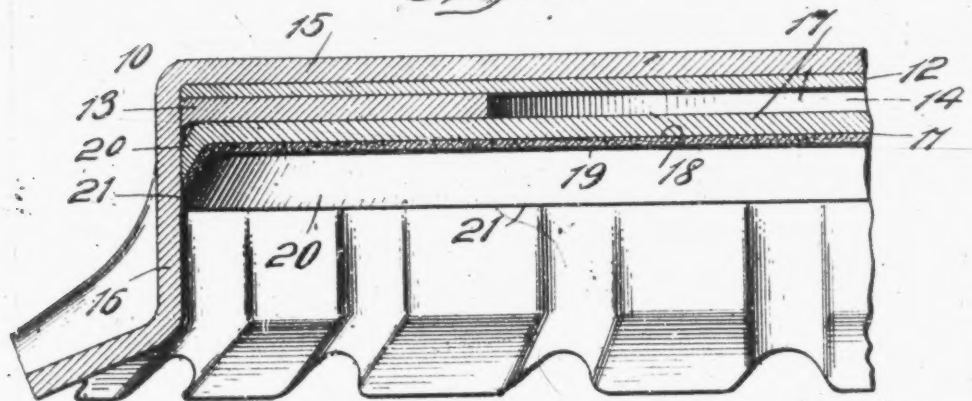


Fig. 3.

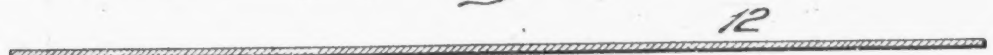


Fig. 4.

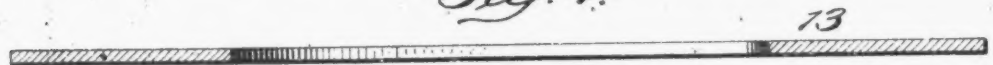
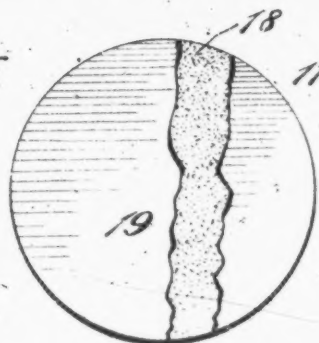


Fig. 5.



Fig. 6.



WITNESSES:

Julius H. Stahl
Arthur Maron

INVENTOR

GEORGE EMIL STAHL

BY

Chas. E. Gill
 ATTORNEY

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UNITED STATES PATENT OFFICE

GEORGE EMIL STAHL, OF JERSEY CITY, NEW JERSEY.

CLOSURE FOR BOTTLES, JARS, AND OTHER RECEPTACLES.

1,215,737.

Specification of Letters Patent.

Patented Feb. 13, 1917.

Application filed May 10, 1915. Serial No. 26,978.

To all whom it may concern:

Be it known that I, GEORGE EMIL STAHL, a citizen of the United States, and a resident of Jersey City, in the county of Hudson and State of New Jersey, have invented certain new and useful Improvements in Closures for Bottles, Jars, and other Receptacles, of which the following is a specification.

The invention pertains more particularly to bottle closures of the crown cap type, and resides in a novel lining or interior structure to be applied within the dome of the cap for engagement with the upper edge of the bottle or receptacle to be sealed.

Bottle caps are ordinarily made of sheet tin and contain a rubber ring or a disk of cork or other substance to seal the bottle mouth. These caps have proven inefficient in many instances in respect of their sealing action, particularly in their use on bottles containing beer, due to the necessity of subjecting beer to a high temperature while in the bottles. The pasteurizing of the beer results in an expansion of the gas within the bottles, and considerable difficulty has heretofore been encountered in so sealing the bottles as to prevent the escape of the expanded gas.

In accordance with my invention I provide means for effectually resisting the escape of the expanded gas and maintaining the bottle in a properly sealed condition.

The invention will be fully understood from the detailed description hereinafter presented, reference being had to the accompanying drawings, in which:

Figure 1 is an enlarged central vertical section through a bottle cap having an interior sealing structure embodying my invention;

Fig. 2 is a sectional view on a still larger scale of a portion of the same;

Figs. 3, 4 and 5 are central vertical sections, on an enlarged scale, of the several layers of material employed by me in the formation of the interior structure of the cap, and

Fig. 6 is a bottom view, partly broken away, of the lower laminated disk forming a part of the interior structure of the cap.

In the drawings 10 designates a sheet metal cap of the crown type containing the sealing structure of my invention, this structure comprising, in the preferred embodiment of the invention, a lower laminated

sealing disk 11, an upper crown disk 12 and an intermediate ring 13 within which is created within the outline of its inner annular edge and the facing surfaces of the disks 11, 12, a substantial air chamber 14, which it is one of my purposes to create and which is utilized, in accordance with my invention, in effecting and maintaining the proper sealing of the bottle to which the cap may be applied.

The cap 10 is stamped in the usual manner from sheet metal and is commonly designated as a "crown cap," said cap comprising an upper or dome portion 15 and a depending edge flange 16.

The cap 10 may be of any of the usual modified forms of crown caps and is not novel with the exception of its use in connection with the interior or lining structure I provide therein to secure the effectual sealing of the bottle.

The several parts of the interior structure of the cap will preferably vary in thickness and in some respects in character. The disk 12 will preferably be formed from a reasonably thin sheet of paper and will lie directly against the lower surface of the dome of the cap 10. The ring or washer 13 will be formed from jute paper stock or other suitable material and will be considerably thicker than the disk 12 so that a commodious air-chamber 14 may be created within the outlines of said disk or washer 13 and interiorly of the sealing structure of the cap. The disk 11 may be of any suitable material but in the preferred construction is of laminated character and composed of a disk or layer 17 of jute paper stock, a layer of gutta percha, or equivalent substance, 18, adhering to the lower surface of the disk or layer 17, and a very thin layer of paper tissue 19 adhering to the lower surface of the layer of gutta percha 18. The disk 12 and ring or washer 13 are flat and closely engage, at their edges, the inner upper edges of the cap 10. The disk 11 is initially punched flat from a laminated sheet (Fig. 5) and then forced into the inverted cup-shape shown in Fig. 2 whereby the edges of the disk become downwardly flanged, as at 20, and a lower feather edge 21 is formed closely engaging the inner surfaces of the sides of the cap. The disk 11 presents a more extended surface to the cap than would be the case if the flange 20 were omitted and the plain edge of the disk

merely extended out to the side wall of the cap, as will be obvious from an inspection of Fig. 2, and in addition, the presence of the flange 20 affords extended surfaces to engage the upper edge or lip of a bottle neck and adds to the effectiveness of the seal.

The layer of gutta percha 18 is impervious to moisture and protects the layers between it and the top of the tin cap from contact with the beer or other liquid, said layer of gutta percha keeping the layer 17, ring or washer 13 and disk 12 dry. The layer of gutta percha 18 also preserves the cushioning character of the sealing structure and in itself contributes to the efficiency of the sealing structure. I also call attention to the fact that in the downward flanging of the edges of the sealing structure the edges of the gutta percha disk 18 become placed in direct contact with the vertical sides of the flange of the cap and create therewith, when the cap is subjected to pressure and the heat of the pasteurizing process, a hermetic seal trapping within the crown of the cap above said disk whatever air there may be therein, so that said air may, in accordance with my invention, act by expansion for effectually maintaining the sealing of the bottle or other receptacle. The downward flanging, as at 20, of the sealing structure arches the lower portion of such structure and when the structure is placed within the cap preparatory to the cap being applied to the bottle, it will maintain its position therein. The thin layer of tissue paper 19 need not cover the whole lower surface of the layer of gutta percha 18 but for convenience of manufacture does do so, and said layer of thin tissue paper 19 is utilized mainly to prevent the heat during the pasteurizing of the beer from so softening the gutta percha 18 as to cause it to unduly adhere to the edges around the mouth of the bottle to which the cap may be applied. The presence of the tissue paper 19 is sufficient to render it certain that the gutta percha will not become unduly affixed to the edges of the mouth of the bottle during the pasteurizing process, and when employed eliminates all danger of the laminated disk 11 adhering to the bottle and leaving the cap 10 when the cap is removed by the usual cap-lifter from the bottle. The disk 11 is punched from a laminated sheet such as I show in Fig. 5 composed of the three layers all closely pressed together and adhering to one another, the paper tissue being about .003 thick and becoming substantially impregnated with the gutta percha and firmly and closely affixed thereto. In Fig. 6 I illustrate the tissue paper layer 19 as having been partly torn away to disclose the gutta percha layer.

The interior or lining structure of the cap is novel and important regardless of the air chamber 14, but the presence of said air cham-

ber adds very greatly to the efficiency of the cap and lining structure and is a characteristic feature of my invention. The presence of the air chamber 14 inclosed within the lining structure and so located as to be concealed, thereby confining the air therein, is of particular importance especially during the pasteurizing process or processes of any nature when the temperature should change the contents of the receptacle, at which time the air within said chamber expands and acts to bind those portions of the disk 11 adjacent to the inner edges of the mouth of the bottle against said edges, while at the same time the air is prevented from escaping from said chamber. All the layers of the lining structure are of yielding material and hence may closely hug the walls of the cap and the surfaces around the mouth of the bottle, whereby the interior chamber 14 becomes hermetically sealed and the body of air therein is adapted to act by expansion for effectually maintaining the sealing of the bottle to which the cap may be applied.

It is well known that very great difficulty is experienced in preventing the escape of gas from a beer or other bottle under varying degrees of temperature and especially during the pasteurization of the liquid or beer in the bottle, and this is in large part due to the different ratios of expansion of the glass and tin, the tin expanding more rapidly than the glass, and the result of these natural conditions is that when the bottle is subjected to heat the tin cap will first expand and tend to loosen from the bottle mouth and permit leakage of gas, and to meet this condition is one of the main purposes of my inclosed air chamber 14. The expansion of the air in the sealed air chamber 14 opposes the pressure of the expanded gas in the bottle neck and augments and maintains the constant pressure of the disk 11 against the lip of the bottle and especially against the inner edges thereof, the expanded air in the lining structure of the cap compensating for the different ratios of expansion between the tin and glass.

A further characteristic feature of my invention is the provision on the disk 11 of the annular depending flange 20 to afford a sealing and cushioning medium extending outwardly over the upper edges of the bottle mouth. It is highly advantageous also that the disk 11 be covered on its lower face with gutta percha or some equivalent impervious substance whose edges are closely bound against the inner sides of the bottle cap 10. The gutta percha-layer 18 being adhesive becomes closely incorporated with the paper layer 17 and impregnates the tissue layer 19, and hence the disk 11, while laminated, is substantially in one integral piece. The presence of the gutta percha

1,215,737

layer 18 is also of importance, owing to the nature of the gutta percha itself, being sufficient in thickness to yield to the irregularities in the top of the bottle mouth and to the inner surfaces of the tin cap and being of a clinging nature and of a character not at all prejudicial to the contents of the bottle.

I have hereinbefore described the preferred embodiment of my invention, but I do not wish to be limited to all of the details further than the scope of the appended claims may require. I desire the privilege of the doctrine of equivalency in respect of the materials of which the several parts of the lining structure are made. I therefore do not desire to be confined to the use of jute paper in lieu of paper of some other name, nor do I desire to be limited to the use of gutta percha as distinguished from gum or some equivalent substance or substances which might not be of the nature of gutta percha or gum but equivalent thereto in effecting the sealing of a bottle, protecting the inner layers of the lining structure from the effects of moisture, and cooperating with the expansion of the air in the air chamber 14 in maintaining the bottle sealed and the gases in the bottle properly confined during the pasteurizing or bottling process to which beer or other liquids may be subjected.

In the drawings I illustrate a single air chamber 14, but if this air chamber were subdivided by partitions into a plurality of air chambers I would regard the then plural number of air chambers as the air chamber of my invention.

What I claim as my invention and desire to secure by Letters-Patent, is:

1. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth and confining air to act by expansion for effectually maintaining the sealing of the bottle, said sealing structure in its lower peripheral part being initially flanged downwardly and closely engaging the flange of the cap and also being impervious to moisture and of a character to adhere at its edges to the said flange so as to make a hermetic seal trapping said air.

2. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth, said sealing structure having an upper cushioning portion and a lower portion initially flanged downwardly

along its peripheral edges and closely engaging the flange of the cap and having a lower coating of material rendering the sealing structure impervious to moisture and of a character to adhere at its edges to the said flange, so as to form a circumferential hermetic seal. 70

3. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth, said sealing structure having an upper cushioning portion and a lower portion initially flanged downwardly along its peripheral edges and closely engaging the flange of the cap and having a lower coating of gutta percha rendering the sealing structure impervious to moisture and of a character to adhere at its edges to the said flange, so as to form a circumferential hermetic seal. 75 80 85

4. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth, said sealing structure having an upper cushioning portion and a lower portion initially flanged downwardly along its peripheral edges and closely engaging the flange of the cap and having a lower coating of gutta percha rendering the sealing structure impervious to moisture and of a character to adhere at its edges to the said flange, so as to form a circumferential hermetic seal, said gutta percha having on its lower surface a thin tissue to prevent it from adhering so tightly to the bottle mouth as to pull the sealing structure from the cap on the uncapping of the bottle. 90 95 100 105

5. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and a depending edge flange, and a sealing structure within said cap comprising a yielding body to engage at its outer edges the side walls of the cap and the edge of the bottle mouth and containing a definite air chamber in which a body of air is effectually sealed to act by expansion for maintaining the sealing of the bottle, said sealing structure having at its lower part a layer of gutta percha closely bound thereto and thereby rendering the structure impervious to moisture and to the entrance of gas from the bottle, and said layer of gutta percha being in engagement with the flange on the cap so as to effect a circumferential seal therewith and also adapted to seal along the bottle mouth, whereby the bottle becomes sealed and the air in said chamber becomes effectually confined. 110 115 120 125 130

6. A closure for bottles and the like, comprising a metal cap of the crown type having a dome and a depending edge flange, and a sealing structure therein comprising a lower cushioning disk of paper having on its lower side a substance rendering it non-absorbent and non-porous and above said disk a ring of paper within whose interior outline is formed an air chamber, said sealing structure being adapted to engage at its outer edges the side walls of the cap and the edge of the bottle mouth, and said disk initially having a depending edge flange to engage the inner side walls of the cap and the outer edges of the bottle mouth and said air chamber being hermetically sealed to confine therein a body of air to act by expansion for effectually maintaining the sealing of the bottle.

7. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and an edge flange to be crimped on the bottle, and a sealing structure within said cap comprising a yielding body to engage at its outer edge the side walls of the cap and the edge of the bottle mouth and consisting of a lower layer, an intermediate ring layer and a disk top layer, said intermediate layer being open interiorly to form an air chamber between its inner edges and the said lower and upper layers and said layers being closely bound together and protected against the effects of moisture, whereby said air chamber becomes permanently maintained and confines a body of air to act by expansion against said yielding body for effectually maintaining the

sealing of the bottle, and said sealing structure being formed along its outer edges with a depending flange closely engaging the inner sides of the cap and adapted to engage the outer side edges of the mouth of the bottle.

8. A closure for bottles and the like, comprising a sheet metal cap of the crown type having a dome and an edge flange to be crimped on the bottle, and a sealing structure within said cap comprising a yielding body to engage at its outer edge the side walls of the cap and the edge of the bottle mouth and consisting of a lower paper layer having bound on its lower surface a covering of gutta percha, an intermediate ring layer and a disk top layer, said intermediate layer being open interiorly to form an air chamber between its inner edges and the said lower and upper layers and said layers being closely bound together, whereby said air chamber becomes permanently maintained and confines a body of air to act by expansion against said yielding body for effectually maintaining the sealing of the bottle, said lower layer at its outer edges being formed with a depending flange closely engaging the inner sides of the cap and adapted to engage the outer side edges of the mouth of the bottle.

Signed at New York city, in the county of New York and State of New York, this 7th day of May, A. D. 1915.

GEORGE EMIL STAHL.

Witnesses:

ARTHUR MARION,
CHAS. C. GILL.

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PAGE

1417

Oct. 28, 1930.

L. G. LANGE

1,779,884

COMPOSITE MATERIAL FOR CONTAINERS

Filed Feb. 3, 1930

Fig. 1.

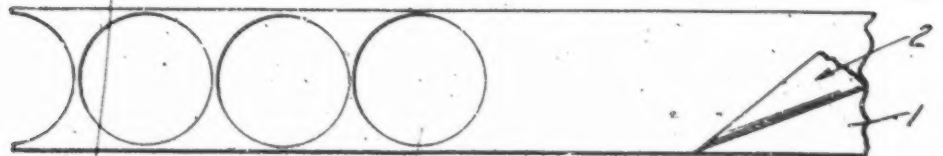


Fig. 2.

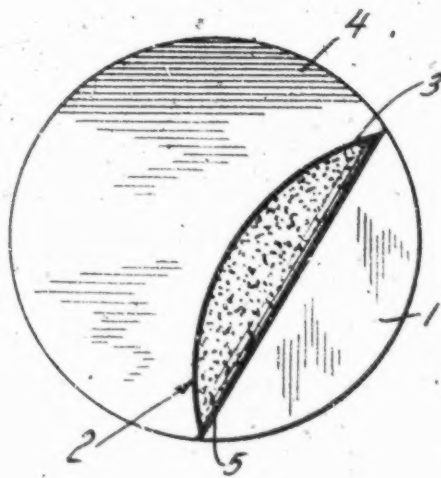


Fig. 3.

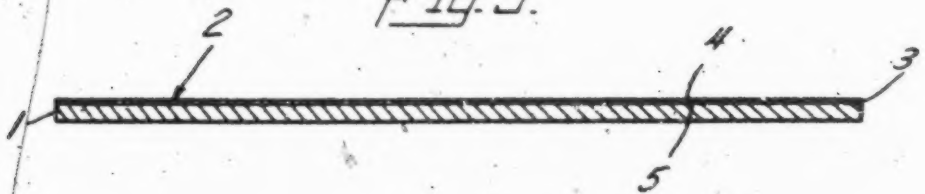


Fig. 4.



INVENTOR

Louise G. Lange

BY

Vernon Hans Martin & Edmonds

ATTORNEYS

Patented Oct. 28, 1930

1,779,884

UNITED STATES PATENT OFFICE

LOUVERN G. LANGE, OF PASSAIC, NEW JERSEY

COMPOSITE MATERIAL FOR CONTAINERS

Application filed February 3, 1930. Serial No. 425,600.

This invention relates to composite material for use in the manufacture of containers and more particularly to a composite material especially adapted to the purpose of providing a liner for bottle caps and the covers of containers in general.

This application may be considered as a continuation in part of my application, Serial Number 375,882 and Patent No. 1,758,610, both filed July 3, 1929.

In order that my invention may be clearly understood I will explain its application to the problem of providing an improved liner for bottle caps, jar covers and the like, although it will be understood that my invention is not limited to such applications thereof.

It has been common practice in the past to provide metal bottle caps, jar covers and the like with cork inserts which come directly in contact with the top of the bottle, or other receptacle. These cork inserts or discs are clamped in position by any suitable means, such as the crimped edge of the ordinary bottle cap, and the insert is supposed to form a seal for the contents of the container. The use of natural cork for this purpose is not very satisfactory because the natural cork contains imperfections which may render an insert made from this material incapable of forming a complete seal for the container. Composition cork inserts have been employed, such inserts comprising comminuted cork and a suitable binder. Such composition inserts, or liners, are more dense and uniform than such liners made from the natural product but they are still unsatisfactory for many purposes because of the fact that the binder of the composition is attacked by many solvents and this results in disintegration of the material which is supposed to form the seal for the container.

In the production of inserts, or liners, for bottle caps, jar covers and the like it is desirable to use some material such as cork, or composition cork, which is resilient and thus capable of conforming to the configuration of the top of the container. At the same time the materials just mentioned are objectionable for the reasons pointed out above

and it is an object of the present invention to provide a composite material suitable for use as liner, or insert material, as well as for other purposes and which is not open to the objections pointed out in connection with the materials discussed above. Natural cork, composition cork and other fibrous resilient materials may be used in accomplishing the objects of my invention but these materials are not used alone, or merely protected by a single coating of material which is supposed to improve their characteristics as has been suggested heretofore.

According to my invention as applied to the making of bottle cap liners and the like I provide some preferably resilient fibrous material, such as cork, composition cork, pulp board, news board, or gray felt and to this material I apply protective layers of a waterproof adhesive and an insoluble varnish. The adhesive and varnish may be carried by a suitable medium, such as cellulose material in sheet form, for example, paper, or the like. I have found that paper is quite satisfactory as a carrying medium and I prefer to employ thoroughly sized paper which has been thoroughly calendered to provide hard surfaces. To one surface of the paper, or other carrying medium, I apply in any suitable manner a film of what I call insoluble varnish. In general it may be stated that by insoluble varnish is meant a varnish which is insoluble, or inert to such solvents as alcohol, acetic acid, citric acid and carbonic acid. Such varnish, although insoluble in and impervious to alcohol and acids of the character described, nevertheless absorbs some moisture and permits some moisture to pass through a film of this varnish. Accordingly, I employ a film of waterproof adhesive and this is employed in such a manner that it is protected from the action of alcohol and other solvents of the character indicated above which would otherwise destroy the adhesive. As indicated above I may apply to one surface of the sheet of paper, or the like, a film of insoluble varnish. To the other surface I apply a film of waterproof adhesive, such as gutta-percha, or similar rubber-like material. This adhesive may be used as a means

for bonding the sheet of paper, or the like, to a base material, preferably resilient in character, such as cork, pulp board or felt. This composite material may be cut into suitable form for application to bottle caps, jar covers and the like, or, if desired, the material may in a sense be assembled within the container cover. For example, the paper may be coated, or otherwise provided with films of varnish and adhesive. The resilient material may be inserted in the container cover and thereafter the varnished and adhesive coated paper may be applied to the fibrous material within the container cover or cap.

I prefer to employ a varnish which comprises a resin which is resistant to alcohol, acetic acid, carbonic acid and the like and an oil which is resistant to these materials. It will be understood that the varnished surface of the paper, or other carrying medium, is exposed to the contents of the bottle, or other container. The films of varnish and adhesive cover the underlying resilient material and together form a complete seal for the container, which is impervious to moisture and inert to the action of such ingredients as may constitute the contents of the container. The adhesive is protected by the varnish and, while the varnish alone is incapable of preventing the escape of moisture, yet this function is performed in a satisfactory manner by the adhesive which remains intact because of the presence of the protective film of varnish.

It will be understood that my invention is particularly suitable for use in the manufacture of containers for beverages, food products and pharmaceutical preparations, many of which contain alcohol, or acids of the character indicated above, which would attack and destroy the ordinary varnish films heretofore proposed as a means for sealing the surface of cork, or other inserts used in container covers.

The various objects and advantages of my invention will be more apparent upon considering the following detailed description which is to be considered in conjunction with the accompanying drawings wherein:

Fig. 1 is a plan view of a strip of composite material embodying my invention;

Fig. 2 is an enlarged plan view of a disc cut from the strip illustrated in Fig. 1;

Fig. 3 is an enlarged elevation of the disc shown in Fig. 2 and

Fig. 4 is a greatly enlarged fragmentary section view of a portion of the disc illustrated in Figs. 2 and 3.

In the accompanying drawings I have illustrated one embodiment of my invention as applied to the production of liners or inserts for bottle caps, jar covers and the like. It will be understood that my invention may be applied to other purposes however.

Referring to Fig. 1 of the accompanying

drawing I have shown a strip of composite material embodying my invention, this strip comprising a base layer of material 1 preferably resilient in character and a superimposed composite layer 2 adhering to the base layer. In Fig. 1 the composite material is shown in strip form from which blanks may be cut in any desired shape to fit bottle caps, jar covers and the like, or for other purposes.

Fig. 2 shows in enlarged form a circular disc cut from the strip illustrated in Fig. 1. From this enlarged view it appears that the composite layer 2 supported by the base 1 comprises a carrying medium 3 in the form of a sheet of paper having on its upper surface a film 4 of insoluble varnish and on its lower surface a film of waterproof adhesive 5.

It will be understood that when the improved composite material is used as an insert or liner for bottle caps, jar covers and the like the base material 1 comes in contact with the inside of the cap or cover and the varnished film is exposed to the contents of the container. The film of varnish is highly resistant to and impervious to solvents, such as alcohol, acetic acid, citric acid and carbonic acid, or in other words the varnished film may be said to be insoluble. The adhesive 5, while not necessarily insoluble in alcohol and acids of the character described, is nevertheless impervious to moisture and effectively prevents any moisture which may pass through the film of varnish from entering the underlying base material 1. The layer of paper, or the like, disposed between the films of varnish and adhesive serves, not only as a carrier for these films, but also as a means for strengthening and reinforcing the composite material to prevent accidental injury to the underlying adhesive film. The combination of varnish and adhesive films according to this invention entirely prevents the escape of moisture through the material which would have a tendency to cause the underlying base material to decompose or mold and this result is accomplished by employing a varnish which is impervious to solvents of the character indicated for protecting a layer or film of adhesive which is effective in preventing the escape of moisture from the container.

The layer of paper, or other cellulose material, illustrated at 3 in the figures of the accompanying drawing is preferably hard surfaced. Where I employ paper I prefer to use paper which has been heavily sized and well calendered to provide glossy surfaces. My reason for preferring this material is that by its use the penetration of the varnish and adhesive into the paper is largely prevented and the varnish and adhesive remain on the surface forming substantially continuous films.

The adhesive material 5 is preferably

gutta-percha, or other rubberlike composition. I prefer to employ a composition comprising gutta-percha, for this material can be softened by heat and by heating the paper carrying the film of adhesive and by heating the underlying material, the layers of material may be effectively united by pressure. Gutta-percha is ordinarily combined with other gums or substances in order to impart to the gutta-percha desirable properties. Balata gums and various other resins are frequently used for this purpose. It will be understood that the term gutta-percha as used herein is intended to describe an adhesive material composed entirely, or only in part, of gutta-percha for various ingredients may be combined with the gutta-percha to improve its characteristics for certain purposes. Gutta-percha in strip form may be applied to the paper 3 in any suitable manner, or the gutta-percha adhesive may be dissolved in a suitable solvent and applied to the paper 3 in liquid form. Where the product is to be used under conditions such that relatively high atmospheric temperatures prevail it is desirable to incorporate with the gutta-percha materials which have a tendency to harden the same and prevent it from melting or softening at elevated atmospheric temperatures. On the other hand where the material is to be used under conditions where low temperatures prevail the gutta-percha composition may be altered accordingly to provide an adhesive which is not unduly brittle at the prevailing low temperatures.

Gutta-percha is especially suitable for accomplishing the objects of my invention for it is waterproof and when combined with a film of varnish as contemplated by my invention a composite material impervious to moisture is formed.

Where the gutta-percha is applied to the paper in liquid form the gutta-percha adhesive may be first dissolved in an appropriate volatile solvent, such as highly refined gasoline, naphtha, toluene, benzene or xylene. The solution may be heated until the mass thickens and it may be applied in the thickened state to the back of paper previously varnished and the remaining volatile solvent permitted to evaporate.

The varnished film 4 covering one surface of the paper, or other cellulose material 3, is preferably the dried residue of a varnish containing a resin which is resistant to alcohol and the acids above indicated and an oil the dried film of which is resistant to these solvents. Various gums or resins are available for this purpose including certain natural gums and at least one synthetic gum. Of the natural gums Zanzibar, Madagascar, and esterized manila gums give the best results. All of these natural gums which are insoluble in alcohol, and black damar, elastica (dry rubber resin) and certain grades of

copal, fuse with difficulty in the oils. Esterized manila however fuses more readily than the others. None of these gums however fuse with the oils as readily as the synthetic cumar gum, nor are the finished films as resistant to the action of solvents as is the cumar gum. Cumar gum (manufactured by the Barrett Company) is soluble in the hot oils of the varnish without any preparatory treatment. Cumar gum may be compounded largely with certain of the oils which are resistant to alcohol, such for example as China wood oil, and it has been found that with such a combination it is possible to add small amounts of oil, such as linseed oil, which is soluble in alcohol, and this without destroying the alcohol resisting properties of the varnish. In making the varnish one or more of the usual driers may be added in appropriate amounts to give a coating of the desired consistency and any volatile thinner in which the constituents of the varnish are soluble may be employed. For this purpose a hydrocarbon thinner, such as high test kerosene, is suitable.

Various oils may be used to dissolve the cumar gum. The following example is given as a representative varnish composition which may be regarded as insoluble in alcohol and in acids of the character indicated above:—150 pounds cumar gum, 50 gallons China wood oil, 5 gallons linseed oil, 5 gallons perilla oil, 18 pounds precipitated manganese resinate, 10 pounds cobalt linolate, 5 pounds full bleached paraffin.

This varnish may be thinned down hot with high test kerosene, or any other appropriate volatile solvent. This example is used merely as an illustration of one type of varnish which is suitable for carrying out my invention. Such a varnish successfully withstands the corrosive or solvent action of chemicals such as alcohol, acetic acid and citric acid or the like customarily encountered in beverages, food products, pharmaceutical preparations and cosmetics.

A departure from the formula given above may be made without sacrificing all of the advantages of my invention. The quantity of linseed oil may be further reduced, or the paraffin may be reduced or eliminated where special conditions of use indicate this to be desirable. Any of the ingredients may be used, in different amounts, or eliminated without departing from the spirit of the invention wherever conditions of use require such modification of a combination of ingredients. I prefer to employ a gum or resin which is insoluble in alcohol but soluble in hot oil in the nature of China wood oil.

After the varnish is applied to the paper it is preferably baked to harden the varnish film and increase its resistance to the action of chemicals. It is quite satisfactory to bake the varnished paper at a temperature of ap-

proximately 300° F. for about an hour. The adhesive coating may be applied to the paper after the baking operation has been completed.

5 It is to be understood that my invention is not limited to the particular embodiments illustrated and described but includes such modifications thereof as fall within the scope of the appended claims.

10 I claim:

1. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

2. A composite material of the character described comprising a layer of sheet material, an alcohol resistant film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material.

3. A composite material of the character described comprising a layer of sized paper, an insoluble film of varnish adhering to one surface of the paper, a layer of resilient material, and a film of waterproof adhesive bonding said resilient material to the other surface of the paper, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

4. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising a gum insoluble in alcohol and an oil the dried film of which is resistant to alcohol.

5. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising cumar gum and an oil the dried film of which is resistant to alcohol.

6. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering

to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising cumar gum and China wood oil.

7. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material, and a waterproof adhesive bonding said resilient material to the other surface of said layer of sheet material, said insoluble film of varnish consisting of the dried residue of a varnish comprising cumar gum, China wood oil and linseed oil in the approximate proportions of 150 pounds of cumar gum to 50 gallons of China wood oil and approximately 5 gallons of linseed oil.

8. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of resilient material and a waterproof adhesive comprising gutta-percha bonding said layer of resilient material to the other surface of said sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

9. A composite material of the character described comprising a layer of sheet material, an insoluble film of varnish adhering to one surface of said layer of sheet material, a layer of fibrous material, and a waterproof adhesive bonding said fibrous material to the other surface of said layer of sheet material, whereby the adhesive is protected from the action of solvents by the film of varnish and a composite material impervious to moisture is formed.

In testimony whereof I affix my signature.
LOUVERN G. LANGE.

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PAGE

1422

No. 671,191.

Patented Apr. 2, 1901.

E. W. HANAUER.
STAY FOR TROUSERS.

(Application filed Sept. 8, 1900.)

(No Model.)

Fig. 1.

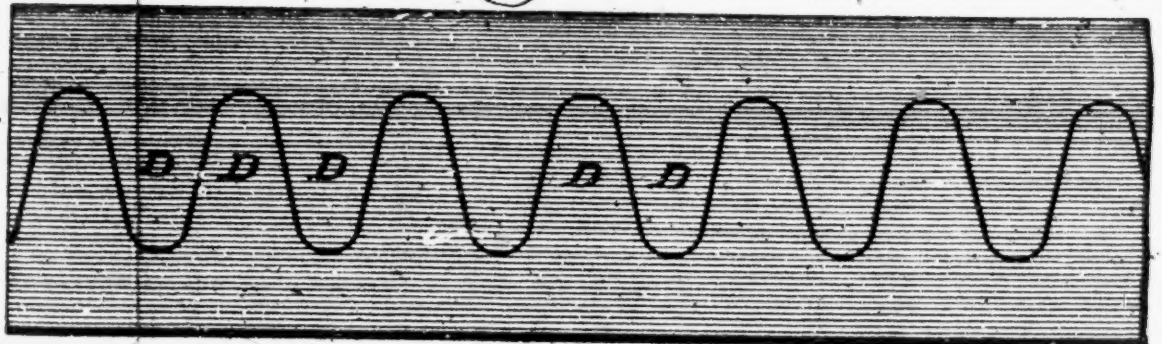


Fig. 2.

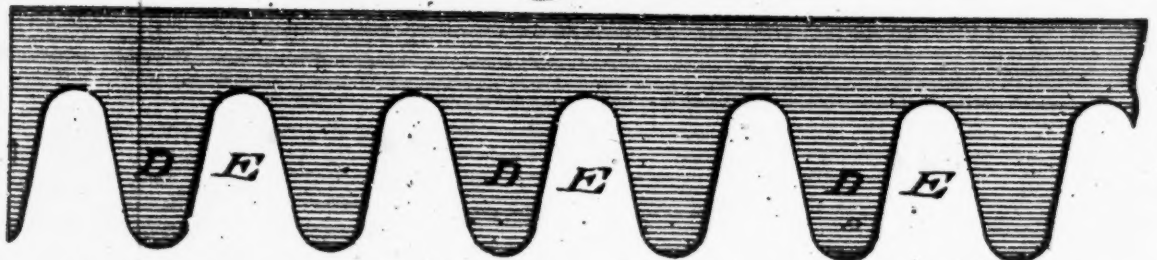


Fig. 3.

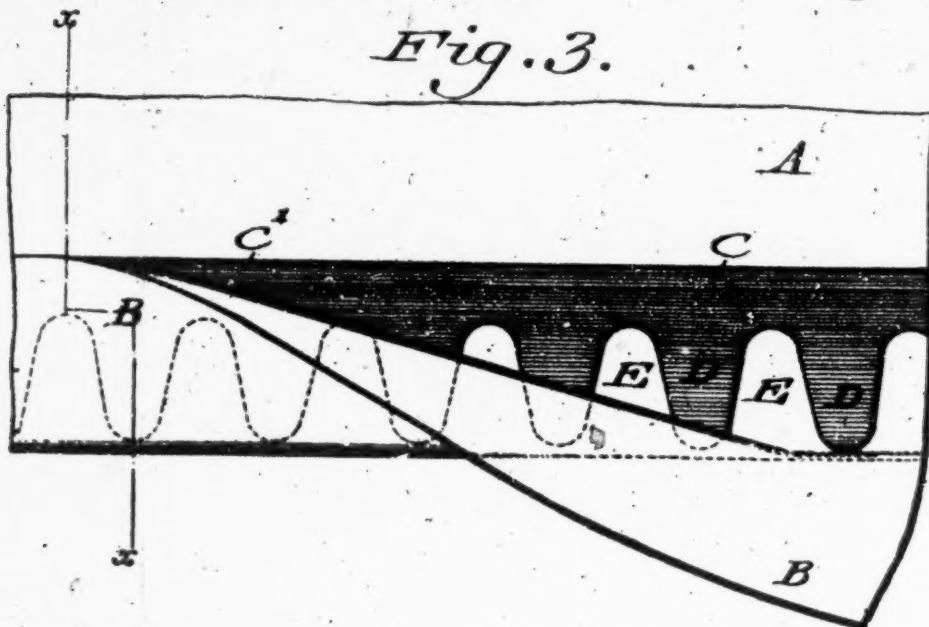


Fig. 4.



Witnesses
P. H. Hagler.
L. Bourville.

Inventor
Edward W. Hanauer
Wiedersheim & Fritzsche
Attorneys

UNITED STATES PATENT OFFICE.

EDWARD W. HANAUER, OF PHILADELPHIA, PENNSYLVANIA, ASSIGNOR OF
ONE-HALF TO GERSON DANNENBERG, OF SAME PLACE.

STAY FOR TROUSERS.

SPECIFICATION forming part of Letters Patent No. 671,191, dated April 2, 1901.

Application filed September 8, 1900. Serial No. 29,360. (No specimens.)

To all whom it may concern:

Be it known that I, EDWARD W. HANAUER, a citizen of the United States, residing in the city and county of Philadelphia, State of Pennsylvania, have invented a new and useful Improvement in Stays for Trousers, of which the following is a specification.

My invention consists of an improvement in stays for trousers, as will be hereinafter fully described and claimed.

Figure 1 represents a plan view of a blank from which the stay embodying my invention is formed, illustrating also the manner of cutting the same. Fig. 2 represents a plan of the said bottom stay. Fig. 3 represents a fragmentary view of the bottom portion of the trousers. Fig. 4 represents a sectional view of the same, taken on the line *x x*.

Similar letters of reference indicate corresponding parts in the figures.

Referring to the drawings, A designates a portion of a leg of a pair of trousers, and B the bottom turn-up thereof.

C designates a stay formed, as usual, of a gummy piece that is inserted between the bottom portion and the turn-up of the trousers and which by adhering thereto holds the turn-up in position, thus obviating sewing the same. This gummy piece may consist of a piece of gutta-percha, rubber, canvas, or other material or fabric and is caused to adhere to the trousers and turn-up usually by the application of a hot iron to the outside thereof after the stay has been inserted therebetween.

35 The upper edge portion of said piece is continuous, as at C', and adapted to extend along the upper edge of the turn-up B and the lower portion of said stay is serrated or broken, forming a series of depending tongues

D, which are separated by the intervening spaces E.

It will be seen that when the stay is secured to the turn-up and the adjacent portion of the leg of the trousers said turn-up is strengthened and sustained, as is also the adjacent bottom portion of the leg of the trousers, but owing to the spaces E or breaks in the lengths of the stay the bottom of the trousers is rendered somewhat pliable, avoiding a stiff appearance and caused to hang naturally and softly over the shoes of the wearer, while also preventing rapid wearing out of the lower edge of the leg. There is also economy in the manufacture of the stays in that a serrated or serpentine cut is made in a strip of material and the edges of said cut are common to two stays, as shown in Fig. 1.

By this method of manufacture I am enabled to make a pair of stays from, say, a two-inch strip of material, each member of the pair being an inch and a half wide, there being thus much saving in material and expense.

Having thus described my invention, what I claim as new, and desire to secure by Letters Patent, is—

A garment provided with a bottom stay consisting of a piece of gummy material having a broken lower edge, said stay being situated between the bottom portion of the garment and the turn-up thereof and adhesively secured to the inner faces thereof.

EDWARD W. HANAUER.

Witnesses:

JOHN A. WIEDERSHEIM,
WM. CANER WIEDERSHEIM.

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PAGE

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1668

DEFENDANT'S EXHIBIT L L L

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records
of this office of the File Wrapper and Contents, in the
matter of the

Letters Patent of

Albin H. Warth, Assignor to
Crown Cork & Seal Company, Inc.,

Number 1,967,195.

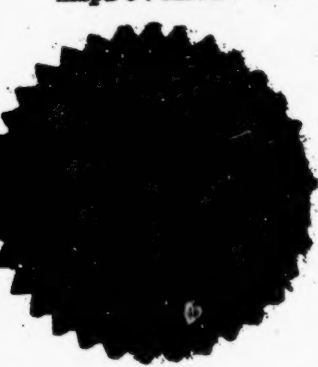
Granted July 17, 1934.

for

Improvement in Methods of Manufacturing Bottle Caps.

IN TESTIMONY WHEREOF I have hereunto set my
hand and caused the seal of the Patent Office to be
affixed, at the City of Washington, this nineteenth
day of September, in the year of our Lord one
thousand nine hundred and thirty-four and of the
Independence of the United States of America the
one hundred and fifty-ninth.

ATTEST:


Chief of Division

Commissioner of Patents

1
4
2
4

1425
1669
NUMBER (Series of 1929)
664410
DIV. 14
Name ALBIN H. WARTH

PATENT NO. 1967195
1933 DATED JUL 17, 1934
(EXR'S BOOK) 27-79
(15)

Division of App., No. 4944201
Filed Nov 7, 1930 in the division of App. 1930 filed for 1, 1931
not published for 179, 240
date filed 1930

Assoc. to Crown Cork & Seal Company, Inc., of Baltimore,
Md. a Corp. of New York

of BALTIMORE
State of MARYLAND Md.

Invention METHOD OF MANUFACTURING BOTTLE CAPS AND APPARATUS THEREFOR

ORIGINAL
APPLICATION FILED COMPLETE APR 4, 1933
Petition, Specification,
Oath, First Fee \$50, APR 4, 1933
82 sheets Drawings,
(1 add sheet being June 21, 1934)

55 RECEIVED
Examined and passed for issue June 20, 1934
By Exr. D. 14
Notice of Allowance June 20, 1934
Final Fee \$30 June 21, 1934

Examined and passed for issue June 20, 1934
By Exr. D. 14
Notice of Allowance June 20, 1934
Final Fee \$30 June 21, 1934
Attorney CUSHMAN, DABY & CUSHMAN AMERICAN SECURITY BLDG. CITY
Associate Attorney

Ed No. of Claims Allowed 3 Print Claims 1 in o. & c. 113-20
Title as allowed Method of Manufacturing Bottle Caps

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MLT
1934

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664410

PETITION

A 2962

APR-4-33 720371 A-Check -

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MAIL DIVISION
APR-4-33
U.S. PATENT OFFICE
TO THE COMMISSIONER OF PATENTS:

Your petitioner Albin H. Warth,

residing at Baltimore,

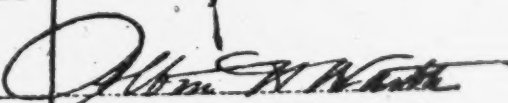
~~in the County of~~

State of Maryland,

whose Post Office address is C/o Crown Cork & Seal Company, Inc.,
Baltimore, Maryland,

prays that Letters Patent may be granted to him for improvements in
METHOD OF MANUFACTURING BOTTLE CAPS AND APPARATUS THEREFOR,
as set forth in the annexed specification.

And he hereby appoints Arlon W. Cushman, ~~Arthur J. Cushman~~
John J. Darby and William M. Cushman (constituting the firm of
Cushman, ~~Arthur J. Cushman~~ Darby & Cushman, Washington, D. C., Registration
No. 7196) and each of them, his Attorneys, with full power of
substitution and revocation, to prosecute this application, to
make alterations and amendments therein, to sign the drawings,
to receive the Patent, and to transact all business in the
Patent Office connected therewith.


(Inventor's Full Name)

SPECIFICATION

TO ALL WHOM IT MAY CONCERN:

BE IT KNOWN, that I, Albin H. Warth,

residing at Baltimore,

~~in the County of~~

State of Maryland,

have invented certain new and useful improvements in

METHOD OF MANUFACTURING BOTTLE CAPS AND ~~APPARATUS THEREFOR~~,
and I do hereby declare the following to be a full, clear and exact
description of the invention, such as will enable others skilled
in the art to which it appertains, to make and use the same:

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M. L. S.

This invention relates to a method of producing closures of the type in which a sealing disk has a facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

This application is a division of my copending application, Serial No. 494,801, filed November 7, 1930, and the latter is a division of my application, Serial No. 159,743, filed January 7, 1927, now Patent No. 1,768,200, granted January 6, 1931.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk ^{or pad} usually made of cork. For some uses, the sealing disks ^{or pads} are given a facing, e. g., tin foil, or aluminum foil, these materials or other materials of protective character being suitable to provide a non-absorbent, gas impervious, and acid resistant facing. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as "spot center" ^{spot} crowns.

These spot-center ^{spot} crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk

and the spot is given an intumed rim which is inserted in the slot. This method is objectionable because of its expense and because the tin foil spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method, the spots are secured by an underlying and separately formed and deposited tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying disks made from separate strips, such as gas and acid resistant material and the adhesive tissue strips, has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shell itself or a cushion disk of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disk in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two

strips one over the other into the disk forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

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It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots ^{may be rapidly} ~~are easily~~ and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view, the invention consists in the method which will be first described and then more particularly pointed out in the claim.

According to the method of the present invention, the strip material, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice, the adhesive substance is such that it can be applied cold, i. e., at room temperatures, and is insoluble in cold water. While various materials may be used,

I have found a suitable adhesive in a solution of damar resin and rosin in mineral spirit or turpentine, to which is added 5% or less of a vegetable oil, such as soya bean or chinawood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. Another example of a suitable gum type of adhesive is gutta percha or a gutta percha containing compound which have characteristics similar to the composition previously described. Among such characteristics are substantially non-tackiness or adherence at room temperature a high degree of flexibility, insolubility in and imperviousness to moisture or water, acid resistance and heat fusibility, i. e., adapted to be brought to a tacky state by the mere application of heat and without the use of moisture. Such an adhesive is specified in my copending application, Serial No. 414,614, filed December 17, 1929, now Patent No. 1,899,782, granted February 28, 1933.

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An adhesive of this character provides a highly flexible adhesive layer continuously united with the facing material. Moreover, such an adhesive is highly resistant to the acids and alkalies ordinarily present in liquids which are to be capped. This is highly important in the manufacture of spot caps, since the liquids attack the adhesive around the edge of the spot. An adhesive of this character, which is not only waterproof, but resistant to acids and alkalies as well, maintains a firm adherent union of the facing or spot material with the cork disk. Due to its flexible character, it will not crack, and, therefore, it constitutes a flexible backing for the spot material.

See also
While the coating may be applied to the material in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such

that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the material, it is dried. While this may be effected by air drying at room temperatures, it is more rapidly accomplished at a temperature of about 300°F., maintained for about three minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body, which facilitates feeding and cutting.

Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from section or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strip of adhesive

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tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened, to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the ~~coating is assembled~~ ^{heat is applied}. This may be accomplished in any suitable manner, ^{for example} by a heated plunger or a plunger and ^{such as illustrated in Figure 6 of the accompanying drawing} heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork.

In cutting disks from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disk so as to insure, by the subsequent application of heat and pressure, a bond between the disk and the cap cushion layer coextensive in area with the disk.

This possibility of securing a clean cut by the dies for forming the disks, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disk and the cap which will effectively prevent the seepage of gas or fluid in a bottle

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between the disk and the portion of the cap to which it is applied.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting disks therefrom and adhesively uniting the disk to caps at the time of the assembly of the disks with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap,

and

Figure 6 is a cross-sectional view of the cap shown in Figure 5 showing the use of additional pressure means which may be utilized following the action of the punch as illustrated in Figures 3 and 4.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

See A
The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil, having on one surface the coating 16 of adhesive, which is preferably of the ^{thermoelastic} character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e., non-tacky, at room temperature, so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disk will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilise, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

See A
In Figures 3 and 4, there is shown a suitable mechanism for applying the disk and adhesively uniting it to the cork insert at the time the ^{disk} strip is punched from the ^{strip} ~~disk and assembled with~~ the cap.



The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap 17 by an adhesive layer 17'; the cushion disk and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marsa, No.

hu a 1,603,786, granted October 19, 1926. The caps, with the cushion disks ^{a disk} inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 18 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disk is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disk upon the cushion layer 18. *if desired*

Insert II 3
hu a The punch 20 may ^{be} maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disk is assembled with the cap, the heat and pressure will cause the disk to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disk thereafter.

hwa
The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger. *such as illustrated in Figure 6, but which would not, of course, be heated*

Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

Self
hwa
It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by *s.s., metal shell with the sealing pad or disk thereon* preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. *in either case the coating thus becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus.* *as soon as deposited on the sealing pad,*

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use, owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk, it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disk. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

*can
for A*

It is preferable after the disk 15 has been bonded to the cork disk 18, to thereafter subject them to continuing heat and pressure for a sufficient interval to ensure the complete fusion of the gutta percha and a close adhesion of every portion of the disk 15 to the disk 18. For this purpose, I have shown (Figure 6) a carrier i and a spring pressed plunger j. In the drawings, I have shown the punch 20 and plunger j as being heated by gas jets, but this is immaterial to the invention and other heating means may be employed.

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A *ec*
I CLAIM:

*Hand
Revised*

1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

(1684)

cancel
for A

4. In apparatus for assembling and securing linings to pads in closure caps, punch and die mechanism, a cap support adapted to position caps relative to the punch and die mechanism; means to position a web of lining material having an adhesive surface normally non-viscous to the punch and die mechanism to be severed into spot linings and positioned in the cap centrally of and with the adhesive surface abutting the pads by the punch and die mechanism, and a heated plunger to which the caps are delivered from the punch and die mechanism to place the linings under heat and pressure and effect an intimate adhesion between the linings and the pads.

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IN TESTIMONY WHEREOF I have hereunto set my signature.

+ Albin H. Warth OA
(Inventor's Full Name)
OATHSTATE OF MARYLAND
CITY OF BALTIMORE
Notary Public) ss.
)

I, Albin H. Warth,
the above-named petitioner, being duly sworn, depose and say that
I am a citizen of the United States,
and a resident of Baltimore, Maryland
and that I verily believe myself to be the original, first and sole
inventor of the improvements in METHOD OF MANUFACTURING BOTTLE CAPS
AND APPARATUS THEREFOR,

described and claimed in the annexed specification; that I do not
know and do not believe that the same was ever known or used before
my invention or discovery thereof, or patented or described in any
printed publication in any country before my invention or discovery
thereof, or more than two years prior to this application or in
public use or on sale in the United States for more than two years
prior to this application; that said invention has not been patented
in any country foreign to the United States on an application filed
by me or my legal representatives or assigns more than twelve months
prior to this application; and that no application for patent on said
improvements has been filed by me or my representatives or assigns in
any country foreign to the United States.

Albin H. Warth
(Inventor's Full Name)Subscribed and sworn to before me this 3rd day of April 1933
(Notarial Seal)Harold L. Decker
(Signature of Notary Public)Notary Public

(Official Character)

MY COMMISSION EXPIRES MAY 1, 1935

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MAIL DIVISION

APR - 4 33

PATENT OFFICE

THE UNITED STATES PATENT OFFICE

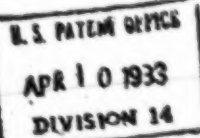
*See in re
Interference*

Albin H. Warth,

METHOD OF MANUFACTURING
BOTTLE CAPS & APPARATUS THEREFOR,

Filed April 4, 1933.

Div. 14.

* * *
April 4, 1933

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

With reference to the accompanying application, attention is called to the fact that claims 1, 2 and 3 are respectively claims 28, 29 and 30 of the patent to Johnson, No. 1,852,578, granted April 5, 1932.

Claim 4 is substantially claim 19 of the Johnson patent, and it is thought that in view of the similarity, this claim should also be involved in interference with the Johnson patent. This application is a division of applicant's allowed case Serial No. 494,801, filed Nov. 7, 1930 (Div. 50) and the latter application is, in turn, a division of Serial No. 159,743, filed Jan. 7, 1927, now patent No. 1,788,260, granted Jan. 8, 1931.

It is to be noted that the issued patent does not disclose the preheating of the crown or pad within the crown. Furthermore, it is to be noted that the said patent was cited by the Examiner against a broader claim (35) presented by Johnson and the said claim was canceled. However, claims 28, 29 and 30 were allowed over the disclosure of the Warth patent No. 1,788,260.

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Therefore, the said claims have already been held by the Examiner to be patentable over the disclosure of the Farth patent or, in other words, divisible subject matter.

With respect to the step of "heating the pads in the caps", the Examiner's attention is called to the following statement in the specification of this application:

"This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited." (Page 12, line 8, at 122.)

With respect to the step of "placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads" (claim 2), attention is called to the following statement in the specification:

"At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the crown is assembled." (Page 8, line 10 at 122.)

With respect to the stage of "then placing the linings assembled in the caps under pressure during the cooling thereof", (claim 3) note the following statement in the specification of this application:

"The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material." (Page 12, line 1-4)

Regarding claim 4, the drawings clearly illustrate the apparatus described and are based upon the original disclosure. The punch and die mechanism is clearly illustrated in the drawings and is, in fact, conventional in the art. It is disclosed in applicant's copending application, Ser. No. 360,895, filed May 5, 1929. Referring to the "heated plunger" to which the caps are delivered from the punch and die mechanism to have heat and pressure applied, this is distinctly described on page 8,

line 14 et seq., as follows:

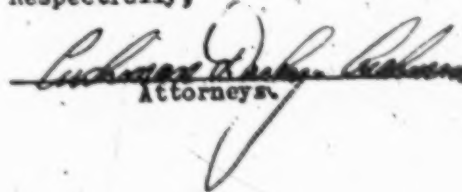
"This may be accomplished in any suitable manner as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork".

Such a heated plunger is illustrated, for example, in Fig. 6, and is described on page 13.

The means for feeding the strip is generally known in the art and is described.

It is requested that an interference be declared promptly.

Respectfully,


Attorneys.

JJD:0

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Div. 14 Room 5097

Address only
The Commissioner of Patents,
Washington, D. C.,
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

R/MC

Paper No. 3

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

APR 14 1933

Please find below a communication from the EXAMINER in
charge of this application.

Thomas E. Robertson
Commissioner of Patents

APR 14 1933

Applicant: Albin H. Warth

Gushman, Darby & Gushman
American Security Bldg.
Washington, D. C.

Ser. No. 664,410
Filed Apr. 4, 1933
For Method of Manufacturing
Bottle Caps and Appar-
atus Therefor.

This case has been examined and the following art is
cited:

Alberti et al. 1,401,300 Dec. 27, 1921 113-80

The statement on page 2, lines 6 to 9, inclusive, in
regard to the present application being a division of ap-
plication, Serial No. 494,201, filed November 7, 1930, which
is in turn a division of application, Serial No. 159,743,
now Patent No. 1,788,260, should be amended to read a
continuation in part rather than "division", it being noted that
Fig. 6 in this application and description thereof on page
13 was not in the original application. No showing is made
in the said parent case of a heated plunger to which the caps
are delivered from a punch and die mechanism as called for
in claim 4 of this application.

Claim 4 is also rejected as failing to patentably dis-
tinguish from Alberti et al, above cited. This apparatus
claim is not allowable over the reference merely on the kind
of strip material applied to the cork. Obviously the punch
as seen in Figs. 1 and 10 will work just as well if ad-
hesive is applied to the strip rather than in liquid condi-
tion to the cork pad. As seen in Figs. 1, 2 and 13, after

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Serial No. 854,410 - - 2

The liners have been positioned on the cork pad in the cap, heated plungers 112, 113 and 114 effect intimate adhesion of the liner and cork pad as called for in the claim.

An interference will immediately be declared between claims 1, 2, and 3 of this application and claims 28, 29, and 30, respectively, of Johnson Patent No. 1,852,578.

212.

N. J. Brumbaugh

Examiner.

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Div. 14 Room 5207

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R/NO

Paper No. 4

Address only
 "The Commissioner of Patents,
 Washington, D. C."
 and not any other by name

DEPARTMENT OF COMMERCE
 UNITED STATES PATENT OFFICE
 WASHINGTON

All communications respecting this
 application should give the serial number,
 date of filing, and name of
 the applicant.

GPO 11-1000

(Copy sent to Assignee)

Please send copies of communication from the EXAMINER in
 charge of this application

APR 18 1933

Thomas E. Robertson
 Commissioner of Patents

Applicant: Albin H. Warth

Cushman, Darby & Cushman
 American Security Bldg.
 Washington, D. C.

Ser. No. 664,410
 Filed Apr. 4, 1933
 For Method of Manufactur-
 ing Bottle Caps and
 Apparatus Therefor.
 APR 20 1933

The case, above referred to, is forwarded to the Examiner
 of Interferences because it is adjudged to interfere with others,
 hereafter specified. The question of priority will be determined
 in conformity with the Rules. The interference will be identified

as No.

66201

On or before

MAY 15 1933

the statement demanded by rule 110 must be sealed up and filed
 with the subject of invention, and name of party filing it,
 indorsed on the envelope. The subject-matter involved in the
 interference is

Count 1. The method of assembling linings for sealing
 pads in receptacle closure caps, consisting in providing
 caps with sealing pads therein and a web of lining material
 arranged with an adhesive surface non-viscous at normal tem-
 perature, heating the pads in the caps, and severing linings
 from the web of lining material and assembling the linings
 as they are severed from the web in the caps with the adhe-
 sive surface in contact with the heated pads to render the
 adhesive viscous and effect adhesion of the linings to the
 pads.

Count 2. The method of assembling linings for sealing
 pads in receptacle closure caps, consisting in providing caps
 with sealing pads therein and a web of lining material arranged
 with an adhesive surface non-viscous at normal temperature,
 heating the pads in the caps, severing linings from the web
 of lining material and assembling the linings as they are
 severed from the web in the caps with the adhesive surface
 in contact with the heated pads to render the adhesive vis-
 cous and effect adhesion of the linings to the pads, and then
 placing the linings in the caps under heat and pressure to
 effect an intimate adhesion between the linings and pads.

Count 3. The method of assembling linings for sealing
 pads in receptacle closure caps, consisting in providing caps
 with sealing pads therein and a web of lining material ar-
 ranged with an adhesive surface non-viscous at normal tem-
 perature, heating the pads in the caps, severing the linings
 from the web of lining material and assembling the linings
 as they are severed from the web in the caps with the adhe-
 sive surface in contact with the heated pads to render the
 adhesive viscous and effect adhesion of the linings to the
 pads, then placing the linings in the caps under heat and
 pressure to effect an intimate adhesion between the linings
 and pads, and then placing the linings assembled in the caps
 under pressure during the cooling thereof.

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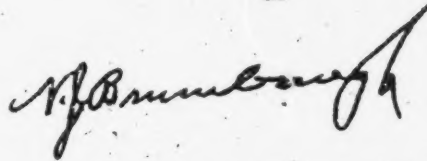
Serial No. 684,410 - - 2

The interference involves your application above identified and a patent, No. 1,852,578, granted April 5, 1932, for Method and Apparatus for Assembling Linings in Receptacle Closure Caps, Serial No. 409,793, filed November 28, 1929, by John A. Johnson, whose post office address is 84-16-86th Street, Woodhaven, N. Y., and whose attorney is John O. Seifert, 277 Broadway, New York, N.Y.

The relation of the counts of the interference to the claims of the respective parties is as follows:

COUNTS1
2
3WARTH1
2
3JOHNSON28
29
30

Counts Compared.

sek


Examiner, Division 14.

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APR 18 1933

INTERFERENCE

Interference No. 66201 Paper No. B
Name, Albin H. Warth
Serial No. 664,410
Title, Method of Manufacturing Bottle Caps and Apparatus Therefor.
Filed, April 4, 1933
Interference with John A. Johnson

DECISIONS ON MOTION

Ex'r of Interferences, _____ Dated, _____
Board of Appeals, _____ Dated, _____

DECISIONS ON PRIORITY

Ex'r of Interferences, Favorable Dated, Apr. 14/34
Board of Appeals, _____ Dated, _____
Court, _____ Dated, _____

REMARKS:

664410 - nt

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Div. 14 Reim 5097

Rosa/MO

Paper No. 6

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 Washington, D. C."
 and not any official by name

DEPARTMENT OF COMMERCE
 UNITED STATES PATENT OFFICE
 WASHINGTON

All communications respecting this
 application should give the serial number,
 date of filing, and name of
 the applicant

Please find below a communication from the EXAMINER in
 charge of this application.

May 15, 1934

11 1423

Commissioner of Patents.

Applicant: Albin H. Warth

Cushman, Darby & Cushman
 American Security Bldg.
 Washington, D. C.

Ser. No. 864,410

Filed Apr. 4, 1933

For Method of Manufactur-
 ing Bottle Caps and
 Apparatus Therefor.

MAILED

MAY 15 1934

Interference No. 66,201 in which this application was
 involved having terminated favorably to this applicant,
 claims 1, 2, and 3, which constituted counts of the above
 identified interference, are allowed.

The step of heating the pads in the caps called for in
 claims 1, 2 and 3 should be suitably illustrated in the draw-
 ings.

Attention is directed to the action of April 14, 1933
 in regard to the specification and in regard to the Rejec-
 tion of claim 4 for the reasons stated therein. The re-
 jection of this claim is repeated for the reasons stated in
 the action.

R
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W. B. Bunn

Examiner.

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A 2964 + add sheet
Drug

Albin H. Warth,

METHOD OF MANUFACTURING
BOTTLE CAPS & APPARATUS THEREFOR,

Filed April 4, 1933,

Serial No. 864,410.

Div. 14.

June 19, 1934

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following
amendments in the above entitled application.

IN THE DRAWINGS

Please enter the accompanying sheet.

IN THE SPECIFICATION

Page 2

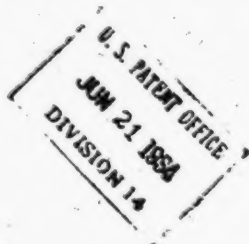
Line 11, after "disk" insert --or pad--.

Line 12, after "disks" insert --or pads--.

Line 17, change "spot center" to --center spot--.

Line 18, before the paragraph beginning "These spot
center crowns etc." insert the following paragraph:

A commercially practicable method for manufacturing
center spot crowns must ensure a high speed of production and
accurate positioning of the center spot. An object of the pres-
ent invention is to provide a method which will permit produc-



(u)

Added
tion at the rate of from 400 to 600 per minute, i. e., application of the center spots to the sealing pads at such a rate. A further object is to ensure accurate positioning or centering of the facing or spot while maintaining this high speed.

Line 18, change "spot center" to --center spot--.

Page 6

Line 30, after "fluid" insert --or plastic--.

Same line (30) cancel "and cold".

Page 8

Line 10, after "softened" insert --by heat--.

Line 14, cancel "crown is assembled" and substitute --spot is applied--.

Line 15, cancel "as" and substitute --for example--.

Line 16, before the period insert --such as illustrated in Figure 6 of the accompanying drawing--.

Page 9

In the brief description of Figure 5 cancel "and".

Same page add the following:

a
Figure 7 illustrates a suitable means for applying heat to the sealing pads or disks for preheating the assembled crowns which are fed to the punch whereby to effect adhesion of the center spot as soon as it is deposited, and

Figure 8 is a view illustrating another mechanism suitable for preheating.

Page 10

Line 17, at the end of the line insert --thermo-plastic--.

Next to the last line cancel "strip" and substitute --disk--.

Same line cancel "disk and assembled with the cap" and substitute --strip--.

cl

Page 11

Line 7, after "disks" insert --or pads--.

Line 24, after the period insert ~~As hereinafter~~

³
described, the method contemplates a preheating of the assembled crown, i.e., the metal shell with a sealing pad therein, before the spot is deposited so that the spot will adhere to the pad as soon as it is deposited.

Line 25, after "may" insert --, if desired,--.

After the last line insert the following paragraph.

⁺
~~As~~ hereinbefore stated, after the spot is positioned on the sealing pad heat and pressure may be applied, as by a plunger or a plunger and heated table. In Figure 6 there is shown for this purpose a carrier 1 and a spring-pressed plunger 1. The plunger 1 is heated by gas jets, and thus the plunger serves as means for applying a continuing heat and pressure after the punching operation to ensure complete fusion of the adhesive and a close adhesion of every portion of the disk 15 to the disk 18.

Page 12

Line 2, after "plunger" and before the period insert --such as illustrated in Figure 6, but which would not, of course, be heated--.

Lines 1 to 4, transpose this paragraph so that it follows the paragraph ending with present line 15.

Line 5, after "crown" insert --i. e., metal shell with the sealing pad or disk therein--.

Line 6, cancel the comma (second occurrence).

Line 10, cancel "in either case" and capitalize "the" (second occurrence).

Line 11, before "becomes" insert --thus--.

Same line (11) after "enough" insert --, as soon as deposited on the sealing pad,--.

Line 13, after the period insert the following:

*(5)
a*
In Figure 7, there is illustrated a suitable means for preheating the sealing pads to ensure adherence of the spot as soon as deposited. A burner 24 is positioned over the conveyor 21 and spaced sufficiently therefrom to apply to the pads heat sufficient to cause the spots to adhere to the latter as soon as deposited. This burner may be disposed within a hood 25 which confines the heat and tends to direct the same against the pads. As will be understood, it is sufficiently elongated to create sufficient heat for the purpose desired. This heater may be positioned immediately in advance of the punch 20 so that heat is not appreciably dissipated or lost before the punching operation. In Figure 8 there is illustrated another mechanism which may be used for preheating. A plunger 26 maintained at an elevated temperature, as by a gas burner 27, when positioned immediately in advance of the punch may be utilized to raise the temperature of the pads sufficiently to cause the spot to adhere to the pads as soon as deposited thereon. *a*

Page 13

Cancel the paragraph appearing on this page.

IN THE CLAIMS

Cancel claim 4.

REMARKS

F

This application has been carefully reviewed in the light of the Official action of May 15th.

The Examiner's attention is called to the fact that the earlier applications referred to on page 2 of the specification contain a clear basis for the disclosure in Figure 6 and the description appearing on page 13. Hence, this application is a division of the earlier applications. If the Examiner will refer to page 8 of the present specification, he will find the following statement:

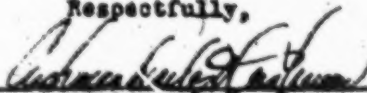
"In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table."

This exact language appeared in the earlier cases referred to. In Serial No. 494,201, filed Nov. 7, 1930, note page 4, lines 24 to 28. In Serial No. 359,743, filed Jan. 7, 1927 (now patent 1,788,260) note page 3, lines 5 to 9. In each earlier application, the disclosure appears in exactly the same language. It is submitted that this disclosure is a clear basis for the illustration in Figure 6, and therefore we submit that the present application is properly designated as a division of the earlier cases.

The new drawing required is submitted herewith, and we think that the same fully meets the requirement for illustration of the preheating step.

The case is thought to be in condition for allowance, which is solicited.

Respectfully,


Attorneys.

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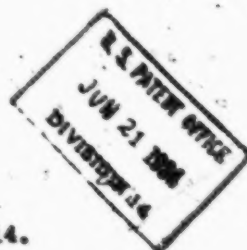
Albin H. Warth,

METHOD OF MANUFACTURING
BOTTLE CAPS,

Filed April 4, 1933,

Serial No. 664,410.

Div. 14.



DISTRICT OF COLUMBIA:SS.

Albin H. Warth, whose application for Letters Patent for Improvements in Method of Manufacturing Bottle Caps, was filed April 4, 1933, Serial No. 664,410, as a division of his application Serial No. 494,201, filed Nov. 7, 1930, being duly sworn, deposes and says that he has read the attached amendment and that the subject matter thereof was part of his invention, was invented before he filed his original application for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his original application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his original application, or in public use or on sale in this country for more than two years before the date of his original application, and that the same has not been abandoned.

Subscribed and sworn to before me this 19th day of June, 1934.

Notary Public.

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8

TITLE REPORT

064,410

Albin H. Warth

The title appears from the assignment records to be vested in.

Crown Cork & Seal Company, Inc.,
Baltimore, Md.,
a corp. of New York.

Examined up to and including 6/12/34

This certificate dated 6/21/34

B. N. Gray
Chief of Assignment Division.

h

No further assignments appear to have been received for record including

6/19/34

111/34

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WASHINGTON, D. C.

181

Serial No. 664,410

Div. 14
MC

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

June 23, 1934

Albin H. Warth, Assoc. eto.

Your APPLICATION for a patent for an IMPROVEMENT in

METHOD OF MANUFACTURING BOTTLE CAPS

filed Apr. 4, 1933 has been examined and ALLOWED with 3 claims.

The final fee, THIRTY DOLLARS, WITH \$1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of \$30 and \$1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN \$30 PLUS \$1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Cushman, Darby & Cushman
American Security Bldg.
Washington, D. C.

[Signature]
Commissioner of Patents.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED COPIES WILL NOT BE ACCEPTED.

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JUN-21-34 2330128 ~Check - 30.00



NOT
WTC

U. S. Patent Office.

FINAL FEE PAID TO THE COMMISSIONER OF PATENTS

(Be careful to give correct Serial No.)

Serial No. 664,410

INVENTOR:

Albin H. Warth

PATENT TO BE ISSUED TO

As per record

NAME OF INVENTION, AS ALLOWED:

Method of manufacturing bottle caps and
apparatus therefor

DATE OF PAYMENT:

June 21, 1934

FEE:

Final 3 cls

DATE OF FILING:

April 4, 1933

DATE OF CIRCULAR OF ALLOWANCE:

June 21, 1934 - Patent to issue July 17, 1934

☒ The Commissioner of Patents will please apply the accompanying fee as indicated above.

Cushman, Darby & Cushman

Attorney.

SEND PATENT TO

Attorneys

APPROVED

JUN 25 1934

Final fees will not be received from other than the applicant, his attorney or attorney, or a party in interest as shown by the records of the Patent Office, NOR WILL THEY BE APPLIED IN PENDING APPLICATIONS.

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R.

Div. 14 Room 5097 DEPARTMENT OF COMMERCE
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 and not any official by name

254 ROSS/MO

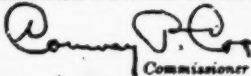
UNITED STATES PATENT OFFICE
 WASHINGTON

Paper No. 49

All communications respecting this
 application should give the serial number,
 date of filing, and name of
 the applicant.

Please find below a communication from the EXAMINER in
 charge of this application

June 21, 1934



Commissioner of Patents.

Applicant Albin H. Warth

Cushman, Darby & Cushman
 American Security Bldg.
 Washington, D. C.

Ser. No. 664,410
 Filed - Apr. 4, 1933
 For Method of Manufac-
 turing Bottle Caps

MAILED

JUN 21 1934

In accordance with the provisions of Order No. 2308, dated March 12, 1917, which reads in part as follows:

Obvious informalities in the application may be corrected by the examiner, but said correction must be in the form of an amendment, approved by the Principal Examiner in writing, placed in the file, and made a part of the record. The changes specified in the amendment will be entered by the clerk in the regular way.

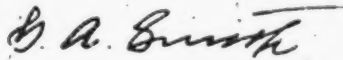
the changes, hereinafter specified, are made by the examiner in the application above identified.

Should these changes not be satisfactory to the applicant, appropriate amendment may be proposed under the provisions of Rule 78, provided the specification has not been printed.

O P O 11-5714

The application has been amended as follows:

The title of the application has been changed to
Method of Manufacturing Bottle Caps, to agree with the
 claims in the case.



Acting Examiner.



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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

June 25, 1927

Petition under **RULE 78:**

MAILED

Application of

JUN 25 1927

Serial No.

Invention:

9

This petition is referred to Examiner in charge of Division *14* in accordance with
Order No. 2698; Order No. 2801, 308 O. G., 447, and Notice of August 11, 1922.

11-2028

File

Conway P. O.
Commissioner.

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6(R78)

U. S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

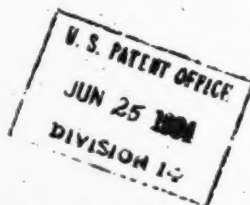
JUN 22 1934

Albin H. Warth,

METHOD OF MANUFACTURING
BOTTLE CAPS,

Filed April 4, 1933,

Serial No. 664,410.



Div. 14.

* * *

June 22, 1934.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

We hereby authorize and request entry of the following
amendment under the provisions of Rule 78:-

IN THE SPECIFICATION:-

Page 5.

Line 20, cancel "are easily" and substitute --may be
rapidly--.

Line 22, after the paragraph, insert the following:-

--Another object of the invention is to provide a method
in which the sealing discs or "spots" when punched from the strip
and delivered to the cushion pad will be stuck in position in-
stantly or as soon as deposited whereby during subsequent oper-
ations they will not move from the accurately centered position
in which they are placed by the punch and die mechanism. This
is preferably accomplished by preheating the sealing pad or cushion
sufficiently to cause the thermoplastic coating on the disc to
fuse sufficiently when it engages the pad to adhere instantly to
the sealing pad.

Line 25, change "cl-aim" to --claims--.

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✓ Page 8.

(b²)(7)(c)
Line 17, after the period insert I also prefer to preheat the cushion disc or pad in the metal shell so that, as soon as the spot is applied, the thermoplastic adhesive thereon will be fused or softened and thereby cause the spot to be fixed in the accurately centered position in which it is deposited and held against dislodgement during the subsequent steps and passage through the apparatus.

REMARKS

The foregoing amendments are purely formal in character and simply elaborate somewhat the description already embodied in the specification.

Respectfully,

Richard D. [illegible]
Attorneys for Applicant.

JJD:K

ENTRY RECOMMENDED.
UNDER RULE 7B

B. A. Smith
Acting EXAMINER

Esther [illegible]
ACTING COMMISSIONER OF PATENTS

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Div. 14 Room 5097

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 11

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

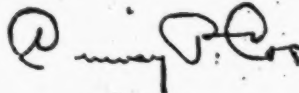
June 25, 1934

Applicant: Albin H. Warth

Cushman, Darby & Cushman
American Security Bldg.
Washington, D. C.

Ser. No. 664,410
Filed Apr. 4, 1933
For Method of Manufactur-
ing Bottle Caps.

The amendment proposed has been entered under Rule 78.



Commissioner of Patents.

11-5000 1-30

MAILED

JUN 25 1934

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July 17, 1934.

A. H. WARTH

1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Original Filed Nov. 7, 1930

2 Sheets-Sheet 1

Fig. 1.

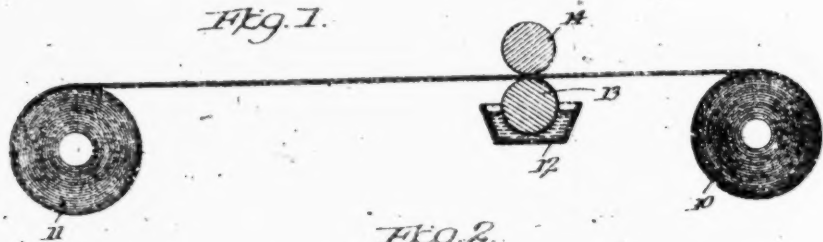


Fig. 2.

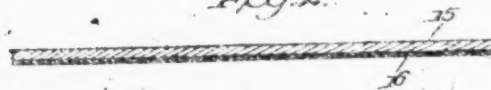


Fig. 3.

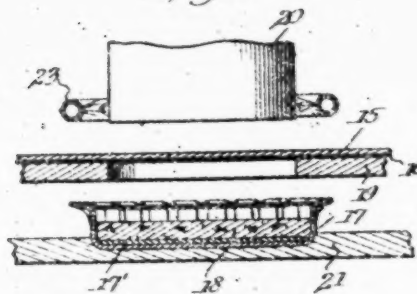


Fig. 4.

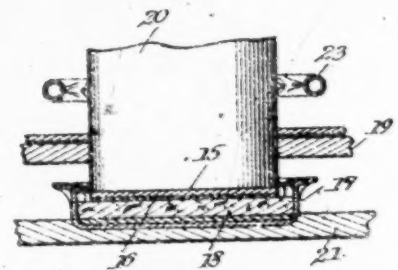


Fig. 5.

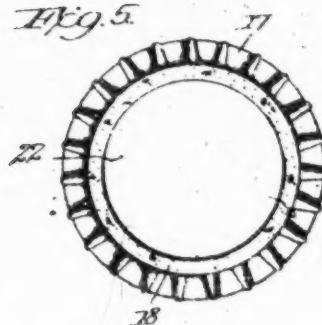
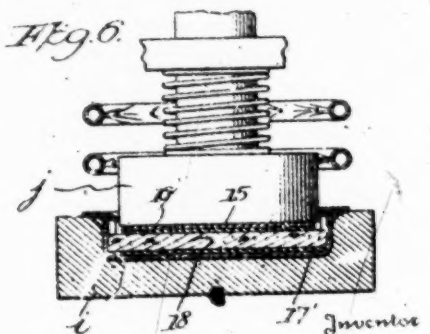


Fig. 6.



Alvin H. Warth.

By *Cushman, Coffey & Leachman*
Attorneys

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PAGE

1466

July 17, 1934.

A. H. WARTH

1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Original Filed Nov. 7, 1930 2 Sheets-Sheet 2

Fig. 7

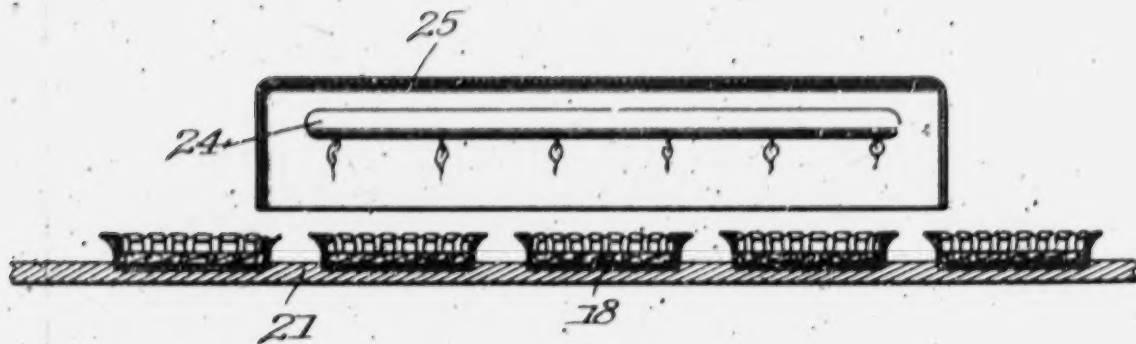
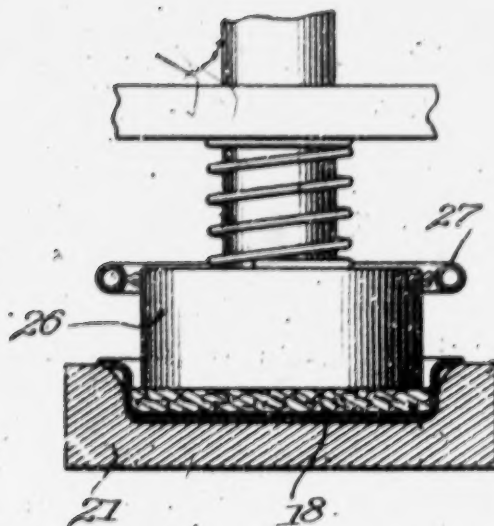


Fig. 8



Inventor

Albin H. Warth

By *Cushman, Dwyer & Cushman*

Attorneys

UNITED STATES PATENT OFFICE

1,967,195

METHOD OF MANUFACTURING BOTTLE CAPS

Albin H. Warth, Baltimore, Md., assignor to
Crown Cork & Seal Company, Inc., Baltimore,
Md., a corporation of New York

Original application November 7, 1930, Serial No.
494,201, which in turn is a division of Serial No.
159,743, January 7, 1927, now Patent No.
1,788,260, dated January 6, 1931. Divided and
this application April 4, 1933, Serial No. 604,410

3 Claims. (Cl. 113-80)

This invention relates to a method of producing closures of the type in which a sealing disk has a facing. This type of closure is characterized by the provision, upon the interior cushion or sealing disc, of a facing or spot having a surface which protects the cushion material from the liquids and gases.

This application is a division of my copending application, Serial No. 494,201, filed November 7, 1930, and the latter is a division of my application, Serial No. 159,743, filed January 7, 1927, now Patent No. 1,788,260, granted January 6, 1931.

Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk or pad usually made of cork. For some uses, the sealing disks or pads are given a facing, e. g., tin foil, or aluminum foil, these materials or other materials of protective character being suitable to provide a non-absorbent, gas impervious, and acid resistant facing. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as "center spot crowns".

A commercially practicable method for manufacturing center spot crowns must ensure a high speed of production and accurate positioning of the center spot. An object of the present invention is to provide a method which will permit production at the rate of from 400 to 600 per minute, i. e., application of the center spots to the sealing pads at such a rate. A further object is to ensure accurate positioning or centering of the facing or spot while maintaining this high speed.

These center spot crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an intumed rim which is inserted in the slot. This method is objectionable because of its expense and because the tin foil spots are apt to drop out. According to another method spots are pasted to the cork disks by a casein paste or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packaged liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method, the spots are secured by an underlying and separately formed and deposited tissue of gutta percha or coated paper. In crowns so made, like objections are met with. For example, one difficulty in applying disks made from separate strips, such as gas and acid resistant material and the adhesive tissue strips,

has arisen from the necessity for feeding the two strips to the punching and assembly machine. There is not only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a water-proof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disk and the material of the cap, either the metal shell itself or a cushion disk of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disk forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint above the edge of the facing disk. When cutting and applying the disk of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material, in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for

assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

5 In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient
10 thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to
15 permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more
20 or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency of the adhesive is to break
25 up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable
30 to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

It is an object of the present invention to provide a method of producing spot center crowns such that the spots may be rapidly and economically secured to the sealing disks and such that
40 they are firmly secured and not liable to become loosened in use.

Another object of the invention is to provide a method in which the sealing discs or "spots" when punched from the strip and delivered to
45 the cushion pad will be stuck in position instantly or as soon as deposited whereby during subsequent operations they will not move from the accurately centered position in which they are placed by the punch and die mechanism. This is preferably accomplished by preheating the sealing
50 pad or cushion sufficiently to cause the thermoplastic coating on the disc to fuse sufficiently when it engages the pad to adhere instantly to the sealing pad.

With these general objects in view, the invention consists in the method which will be first described and then more particularly pointed out
in the claims.

According to the method of the present invention, the strip material, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when
55 soft. In carrying out the method according to what is considered the best practice, the adhesive substance is such that it can be applied cold, i. e., at room temperatures, and is insoluble in cold water. While various materials may be used, I have found a suitable adhesive in a solution of dammar resin and rosin in mineral spirit
70 or turpentine, to which is added 5% or less of a vegetable oil, such as soys. bean or China-wood oil. The dammar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. Another example of a

suitable gum type of adhesive is gutta percha or a gutta percha containing compound which have characteristics similar to the composition previously described. Among such characteristics are substantially non-tackiness or adherence at room temperature a high degree of flexibility, insolubility in and imperviousness to moisture or water, acid resistance and heat fusibility, i. e., adapted to be brought to a tacky state by the mere application of heat and without the use of moisture. Such an adhesive is specified in my copending application, Serial No. 414,814, filed December 17, 1929, now Patent No. 1,899,782, granted February 28, 1933.

An adhesive of this character provides a highly flexible adhesive layer continuously united with the facing material. Moreover, such an adhesive is highly resistant to the acids and alkalis ordinarily present in liquids which are to be capped. This is highly important in the manufacture of spot caps, since the liquids attack the adhesive around the edge of the spot. An adhesive of this character, which is not only waterproof, but resistant to acids and alkalis as well, maintains a firm adherent union of the facing or spot material with the cork disk. Due to its flexible character, it will not crack, and, therefore, it constitutes a flexible backing for the spot material.

While the coating may be applied to the material in various ways, it is conveniently applied in fluid or plastic form to a strip of foil from which the spots are to be cut. So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive
10 throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of disks from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while
15 producing the strip material, so that any imperfect product may be discarded before it reaches the disk applying machine. In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

After the coating is applied to the material, it is dried. While this may be effected by air drying at room temperatures, it is more rapidly accomplished at a temperature of about 300° F. maintained for about three minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble.
20 This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body, which facilitates feeding and cutting.

Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in
25 handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strip of adhesive tissue and facing material where any stretch or distortion of the ad- 30

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hesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the stoppage of the cap machine until the strip can be repaired.

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing disks. In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

At the time of assembly the coating material is softened by heat to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the spot is applied. This may be accomplished in any suitable manner, for example by a heated plunger or a plunger and heated table such as illustrated in Figure 6 of the accompanying drawings. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork. I also prefer to preheat the cushion disc or pad in the metal shell so that, as soon as the spot is applied, the thermoplastic adhesive thereon will be fused or softened and thereby cause the spot to be fixed in the accurately centered position in which it is deposited and held against dislodgment during the subsequent steps and passage through the apparatus. In cutting disks from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disk, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disk so as to insure, by the subsequent application of heat and pressure, a bond between the disk and the cap cushion layer coextensive in area with the disk.

This possibility of securing a clean cut by the dies for forming the disks, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disk, thereby preventing a continuous barrier of non-absorptive and gas impervious material at the space between the disk and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disk and the portion of the cap to which it is applied.

Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting disks therefrom and adhesively uniting the disk to caps at the time of the assembly of the disks with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a segment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap.

Figure 6 is a cross-sectional view of the cap shown in Figure 5 showing the use of additional pressure means which may be utilized following the action of the punch as illustrated in Figures 3 and 4.

Figure 7 illustrates a suitable means for applying heat to the sealing pads or disks for preheating the assembled crowns which are fed

to the punch whereby to effect adhesion of the center spot as soon as it is deposited, and

Figure 8 is a view illustrating another mechanism suitable for preheating.

The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material such as aluminum foil, having on one surface the coating 16 of adhesive, which is preferably of the thermoplastic character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e., non-tacky, at room temperature, so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disk will be adhesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disk and adhesively uniting it to the cork insert at the time the disk is punched from the strip.

The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disk and adhesive may be applied to the cap in any suitable manner, for example, as described in the patent to Marsa, No. 1,603,786, granted October 19, 1926. The caps, with the cushion disks or pads inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disk is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disk upon the cushion layer 18. As hereinafter described, the method contemplates a preheating of the assem-

bled crown, i. e., the metal shell with a sealing pad therein, before the spot is deposited so that the spot will adhere to the pad as soon as it is deposited.

5 The punch 20 may, if desired, be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disk is
10 assembled with the cap, the heat and pressure will cause the disk to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disk thereafter.

15 As hereinbefore stated, after the spot is positioned on the sealing pad heat and pressure may be applied, as by a plunger or a plunger and heated table. In Figure 6 there is shown for this purpose a carrier *i* and a spring-pressed plunger *j*.
20 The plunger *j* is heated by gas jets, and thus the plunger serves as means for applying a continuing heat and pressure after the punching operation to ensure complete fusion of the adhesive and a close adhesion of every portion of the disk
25 15 to the disk 18.

It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during
30 any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown i. e., metal shell with the sealing pad or disk therein, to soften the coating as soon as the metal foil spot is deposited. The coating thus becomes tacky enough,
35 as soon as deposited on the sealing pad, to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus. In Figure 7, there is illustrated a suitable means for preheating the sealing pads to ensure adherence of the spot as soon as deposited. A burner 24 is positioned over the conveyor 21 and spaced sufficiently therefrom to apply to the pads heat sufficient to cause the spots to adhere to the latter as soon as deposited. This burner
45 may be disposed within a hood 25 which confines the heat and tends to direct the same against the pads. As will be understood, it is sufficiently elongated to create sufficient heat for the purpose desired. This heater may be positioned immediately in advance of the punch 20 so that heat is not appreciably dissipated or lost before the punching operation. In Figure 8 there is illustrated another mechanism which may be used
50 for preheating. A plunger 26 maintained at an elevated temperature, as by a gas burner 27, when positioned immediately in advance of the punch may be utilized to raise the temperature of the pads sufficiently to cause the spot to adhere to the pads as soon as deposited thereon.

60 The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example, by a plunger such as illustrated in Figure 6, but which would not, of course, be heated. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

The resulting crown has a firmly secured metal

foil spot which is not liable to become loose in use, owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk, it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disk. This method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

I claim:

1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads.

3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

ALBIN H. WARTH.

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A. BOGDÁNYFY.
MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.
APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 1.

Fig. 1.

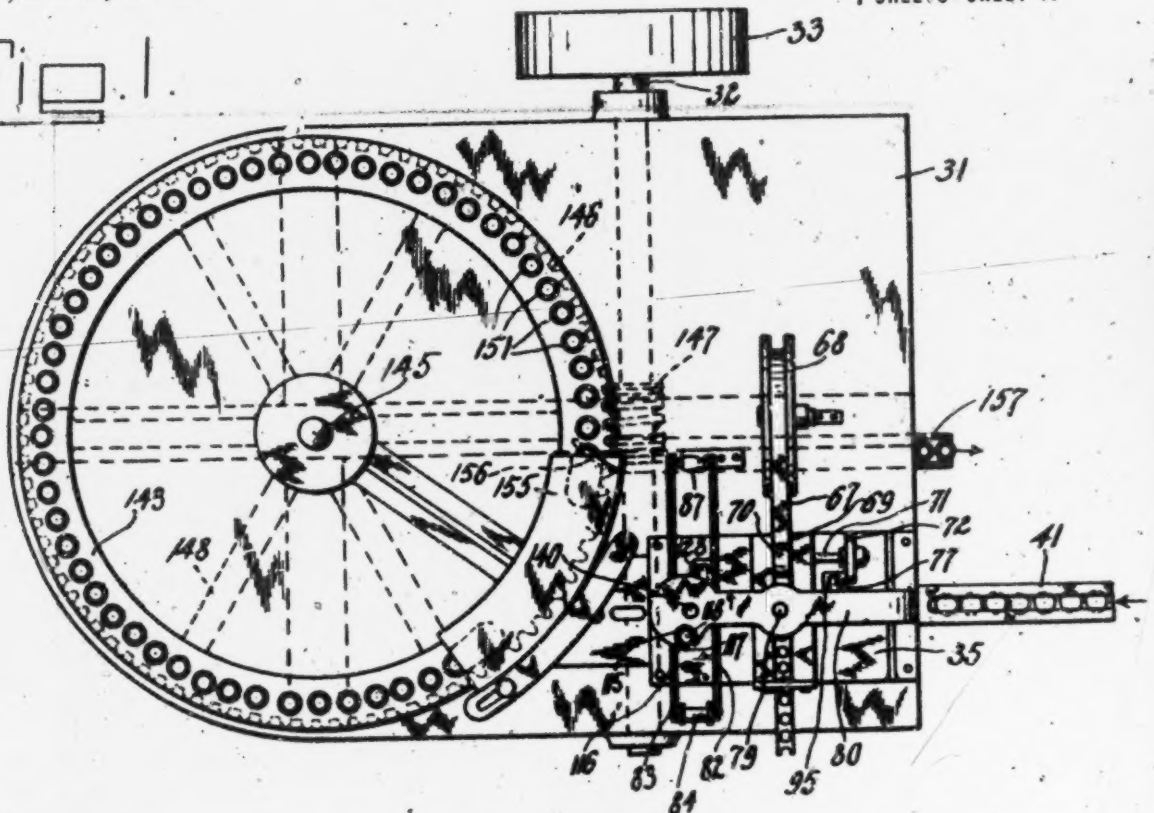
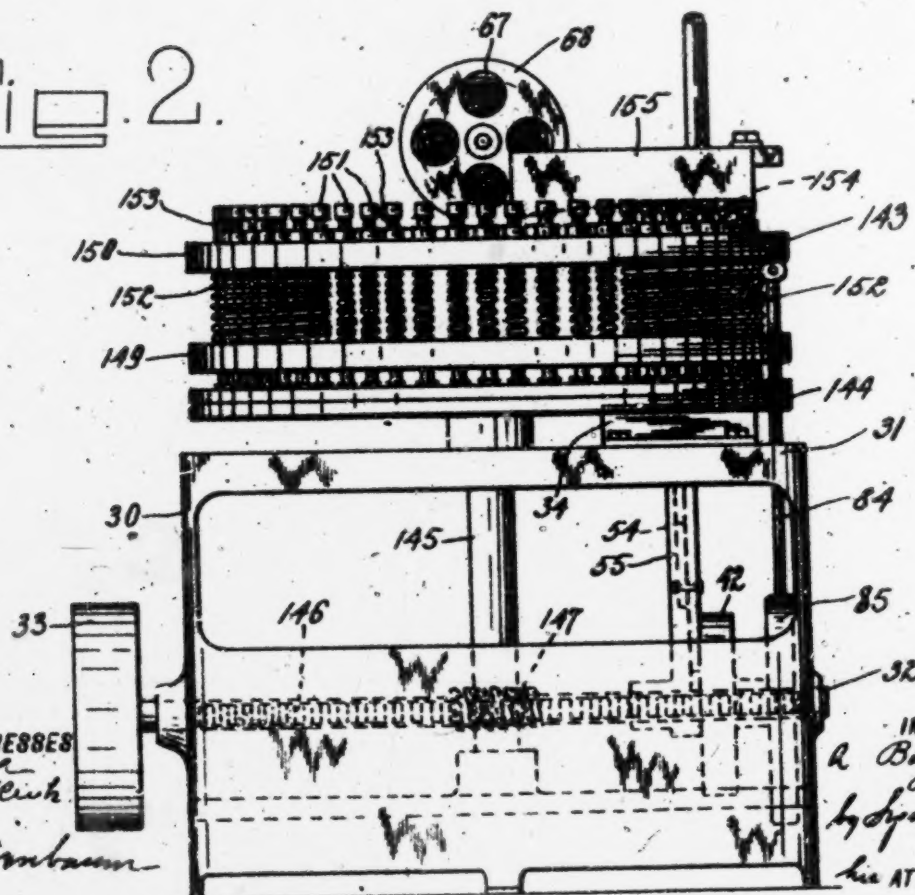


Fig. 2.



WITNESSES
Wm. Kew
S. Birnbaum

INVENTOR
A. Bogdányfy
by *Samuel Kew*
his ATTORNEY

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7 SHEETS—SHEET 2.

Fig. 3.

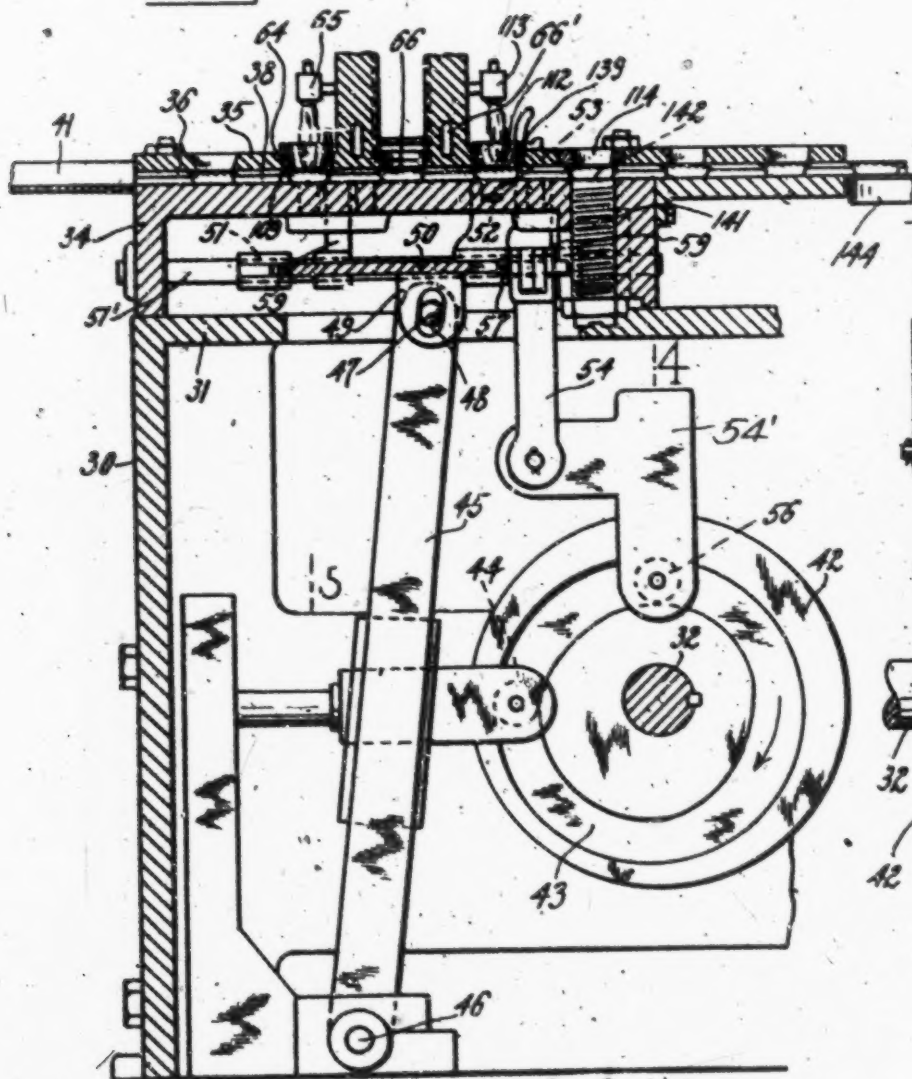


Fig. 4.

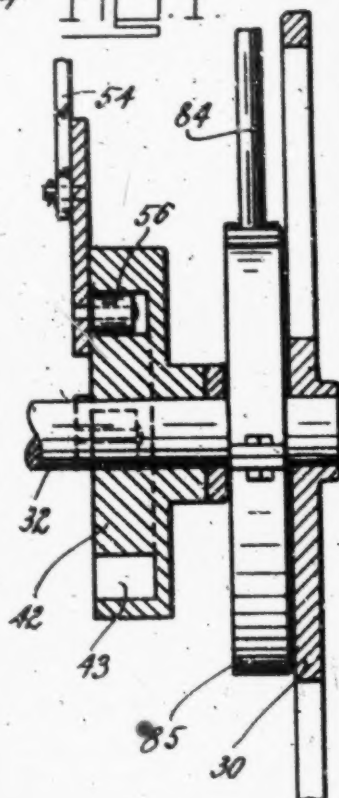
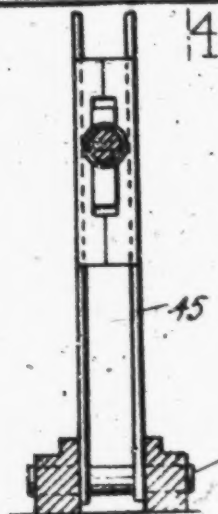


Fig. 5.



WITNESSES
J. H. Kline
S. Buntam

INVENTOR
A. Bogdaffy
BY
Symund Shroy
his ATTORNEY

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A. BOGDÁNYFY.

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7 SHEETS—SHEET 3.

Fig. 6

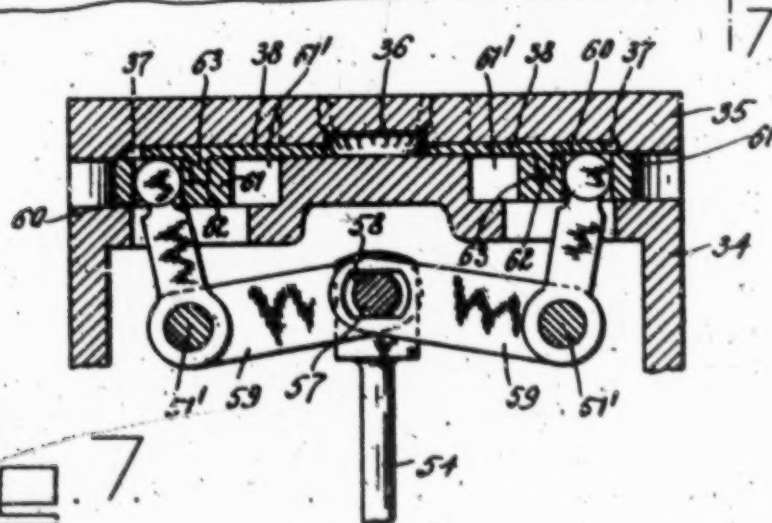
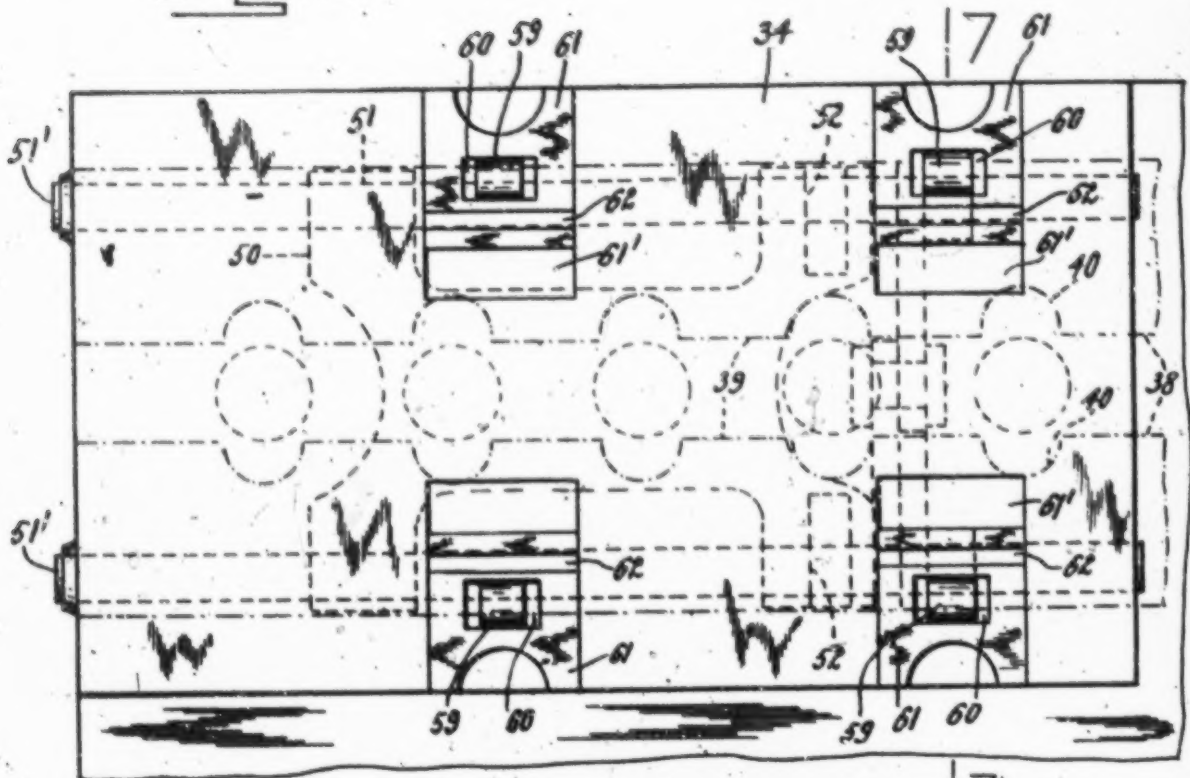


Fig. 7

WITNESSES

J. F. Kunk

J. Bernbaum

INVENTOR

A. Bogdányfy

BY

Sydney Herzog

ATTORNEY

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A. BOGDÁNYFY,
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7 SHEETS—SHEET 4.

Fig. 9.

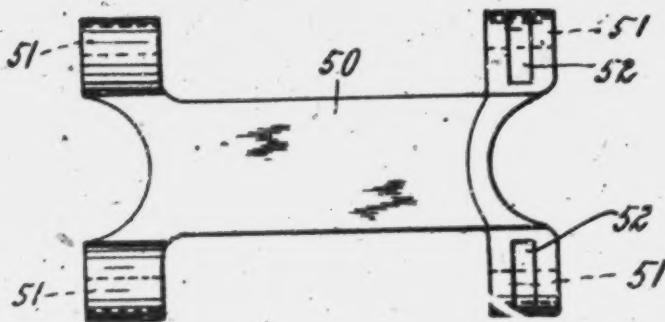


Fig. 8.

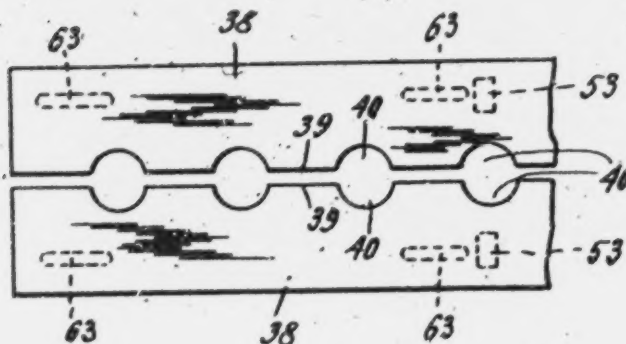


Fig. 25.

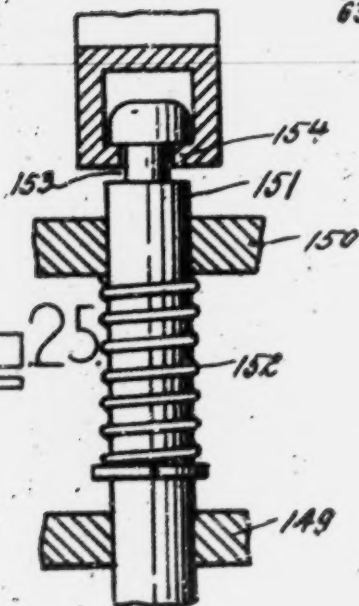


Fig. 27.

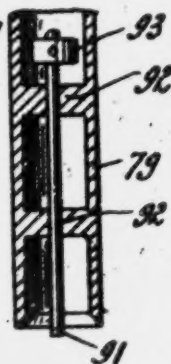
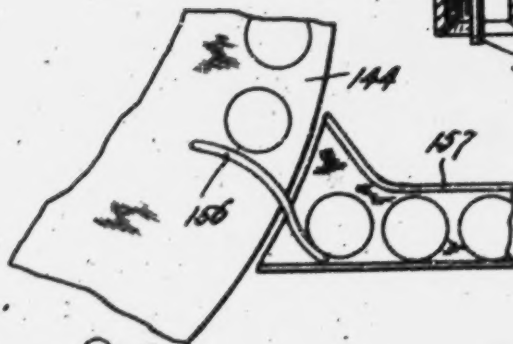


Fig. 26.



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Wm. H. Kline
S. Birnbaum

INVENTOR
A. Bogdányfy
BY
Sigmund Herzog
ATTORNEY

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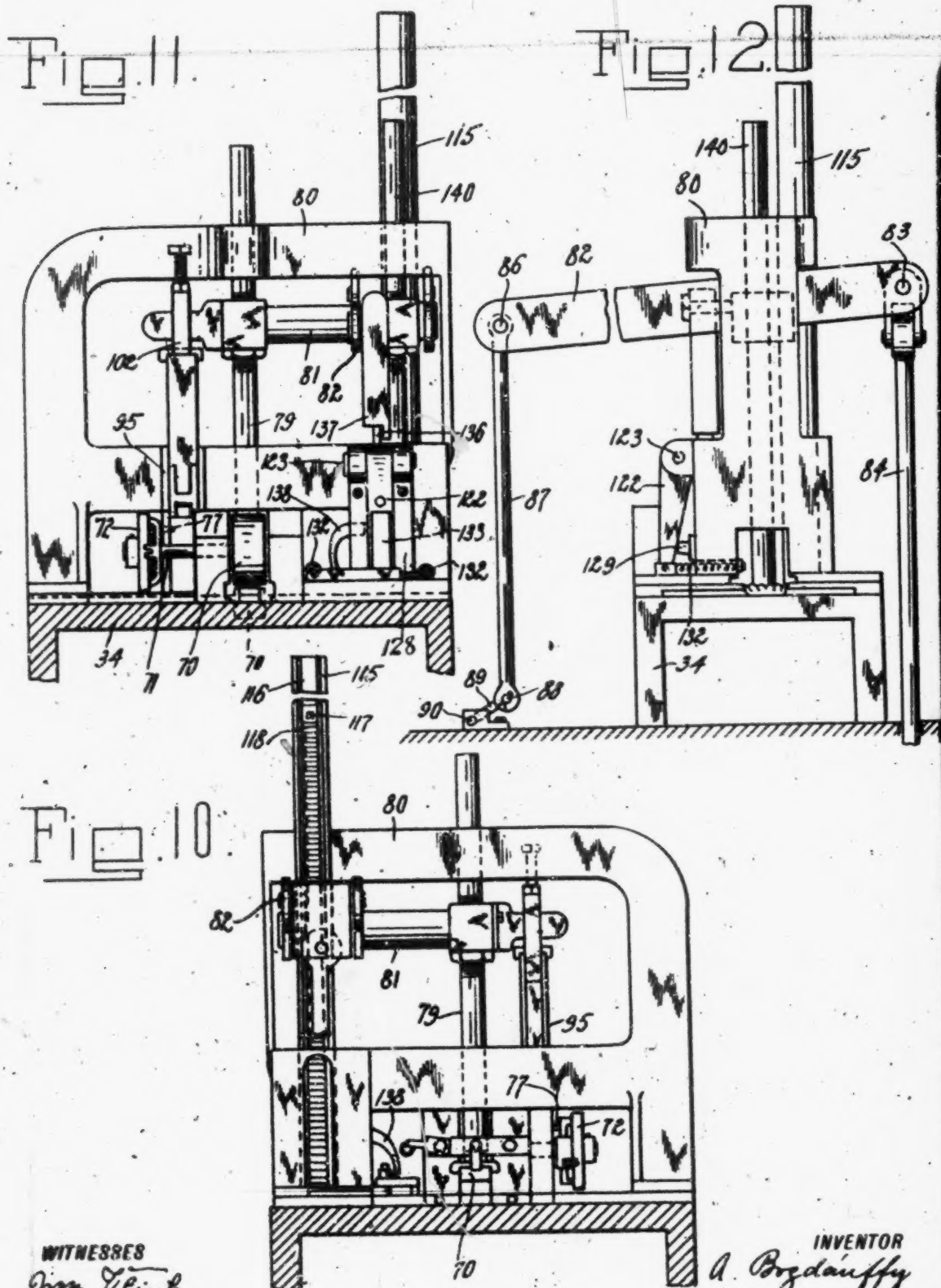
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APPLICATION FILED JULY 5, 1913.

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Patented Jan. 25, 1916.
7 SHEETS—SHEET 5.



WITNESSES
Wm. Klein
L. Brintbaum

INVENTOR
A. Bogdányfy
BY *Sigmund Herzog*
ATTORNEY

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A. BOGDÁNFY.

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APPLICATION FILED JULY 5, 1913.

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Patented Jan. 25, 1916.

7 SHEETS—SHEET 6.

Fig. 14.

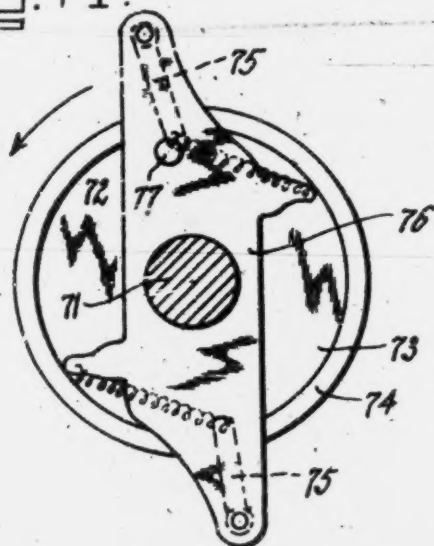


Fig. 13.

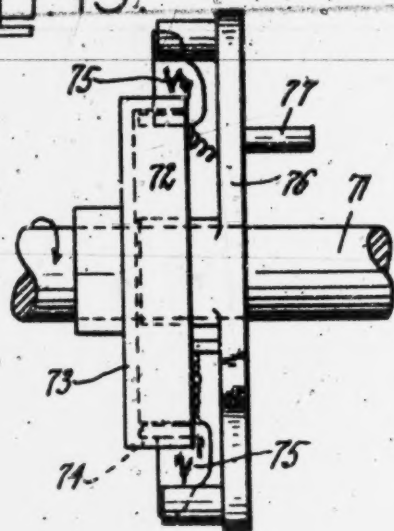


Fig. 16.

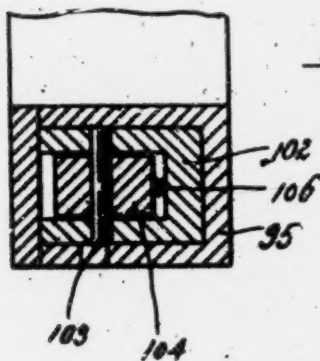


Fig. 15.

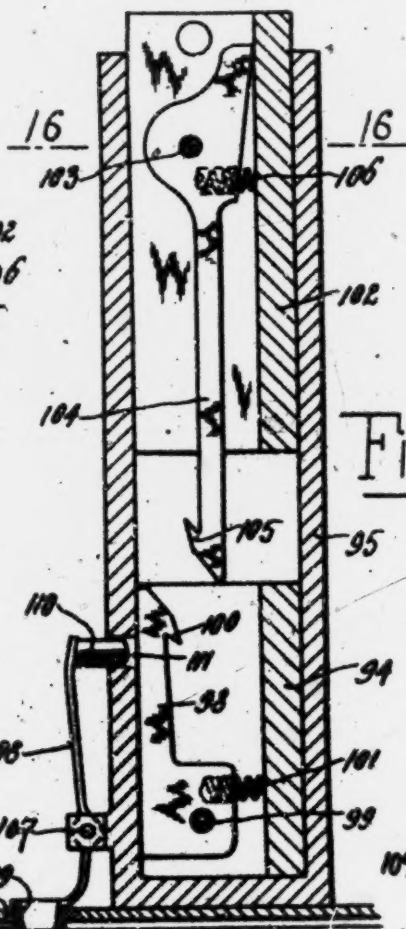


Fig. 18.

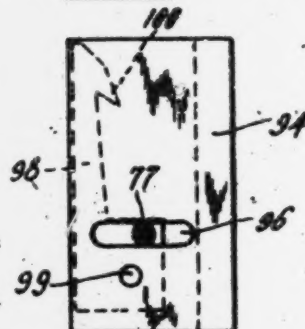
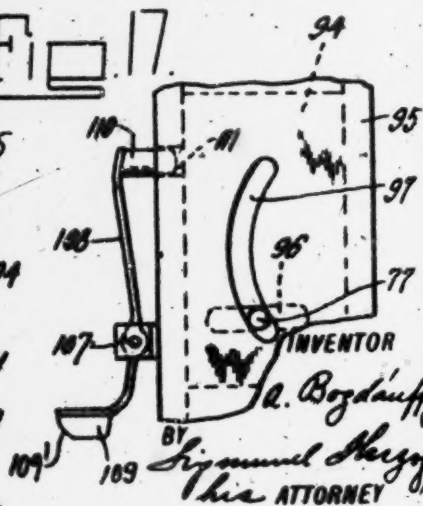


Fig. 17.



WITNESSES
Wm. Klink
S. Birstein

INVENTOR
A. Bogdáffy
BY
L. H. Hertz
ATTORNEY

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A. BOGDÁNYFY.

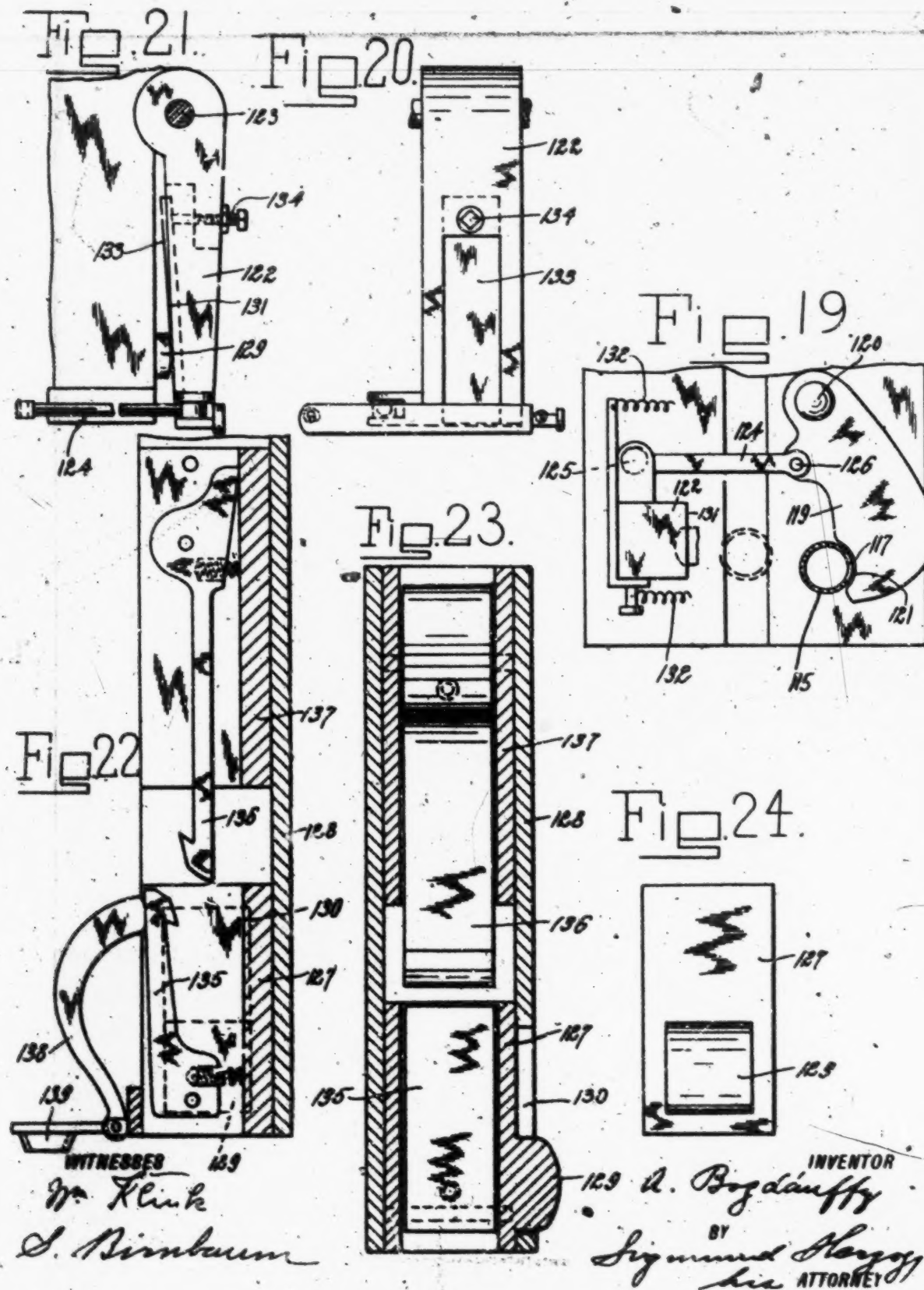
MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED JULY 5, 1913.

1,169,608.

Patented Jan. 25, 1916.

7 SHEETS—SHEET 7.



UNITED STATES PATENT OFFICE.

ALEXANDER BOGDANFFY, OF NEW YORK, N. Y., ASSIGNOR TO THE INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

MACHINE FOR THE MANUFACTURE OF BOTTLE-CLOSURES.

1,169,608.

Specification of Letters Patent.

Patented Jan. 25, 1916.

Application filed July 5, 1913. Serial No. 777,466.

To all whom it may concern:

Be it known that I, ALEXANDER BOGDANFFY, a subject of the King of Hungary, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for the Manufacture of Bottle-Closures, of which the following is a specification.

The present invention relates to a machine for the manufacture of bottle closures of the class known as "crown cork sealing caps or closures." Closures of this type comprise usually three parts, that is a metallic cap having a corrugated flange to be locked to the exterior of the bottle neck, a sealing disk or packing of cork or the like, and an impervious binding medium, for instance in the form of a disk, interposed between the metallic cap and the sealing disk. In manufacturing these caps, the binding material is fused or softened and the assembled closure subjected to pressure before the binding material sets or hardens, whereby the said binding material unites the sealing disk with the metallic cap. Usually the three parts mentioned are first assembled and the closure, as a whole, is then subjected to heating action to fuse the binding medium, and afterward pressure is applied. In other cases the caps contain only the binding material when heat is applied to the same, the sealing disk of cork or the like being inserted subsequently.

Heretofore the outer face of the cap has been subjected to heating action, the heat being conducted by the cap to the binding medium. It has been found in practice that only that portion or surface of the binding material which is in contact with the inner surface of the cap is fully fused, that portion or surface which contacts or is to contact with the sealing disk being softened only to a certain extent. The result of this is that, while the binding material is capable of being properly united with the cap, the union between the sealing disk and the binding material is often defective. When plain or undecorated caps are used, it might be possible to expose the same to heating conditions which might fuse the binding material thoroughly, but when decorated caps are charged with the binding material, and such caps subjected to heating action, the extent

of exposure to properly fuse the binding material is ruinous to the said decorated caps, inasmuch as it affects the paint used in decorating the same and otherwise defaces the caps. Even plain caps cannot be heated to such an extent which is required to properly fuse both faces of the binding medium for the reason that the said caps are transported from one place to the other on the assembling and uniting machine at a speed which prevents the proper extent of exposure to heat.

One of the objects of the present invention is to provide a machine for the manufacture of closures, which produces a firm union between the three parts of the closure by reason of the binding medium being properly fused at its contact faces with the cap and packing disk, respectively, thereby obviating the defects above mentioned.

Another object of the invention is to devise a bottle closure assembling machine which prevents the feeding of the binding material and sealing disk to the respective assembling elements of the machine in case the cap advancing means fails to bring a metallic cap in proper relation to said assembling elements.

A further object of the invention is to provide a simple and effective means for carrying the caps in succession to the assembling elements of the machine, and the assembled closure to the uniting means of the same.

With these and other objects in view, which will more fully appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction within the scope of the appended claims without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a machine constructed in accordance with the present invention; Fig. 2 is a side elevation thereof;

Fig. 3 is a sectional view of the cap feeding device; Fig. 4 is a section taken on line 4—4 of Fig. 3; Fig. 5 is a section taken on line 5—5 of Fig. 3; Fig. 6 is a plan view of the device shown in Fig. 3, certain parts being removed to more clearly show the interior construction; Fig. 7 is a section taken on line 7—7 of Fig. 6, additional parts being placed on top of it; Fig. 8 is a plan view of a detail of the device shown in Fig. 7; Fig. 9 is a plan view of a detail of the device shown in Fig. 6; Fig. 10 is a front elevation of the assembling means of the machine; Fig. 11 is a rear elevation of the device shown in Fig. 10; Fig. 12 is a side elevation thereof; Fig. 13 is a front elevation of the means for actuating the binding material feeding means; Fig. 14 is a side elevation thereof; Fig. 15 is a longitudinal vertical section taken through the means operating the device shown in Fig. 13; Fig. 16 is a section taken on line 16—16 of Fig. 15; Fig. 17 is a side elevation of a detail of the structure shown in Fig. 15; Fig. 18 is a side elevation also of a detail shown in Fig. 15; Fig. 19 is a plan view of the sealing disk feeding means; Fig. 20 is a rear elevation of a detail shown in Fig. 19; Fig. 21 is a side elevation of the mechanism shown in Fig. 20; Fig. 22 is a sectional elevation taken through the means for actuating the sealing disk feeding means; Fig. 23 is a sectional front elevation of the device shown in Fig. 22; Fig. 24 is a rear elevation of a detail of the device shown in Fig. 23; Fig. 25 is a sectional elevation taken through a portion of the uniting means of the machine; Fig. 26 is a plan view of the means for removing the finished product from the machine; and Fig. 27 is a central vertical section taken through the binding material cutting means.

Broadly speaking, the bottle closures are manufactured on the machine, forming the subject matter of the present application, as follows: The inner surface of a cap is first subjected to an intense heat, the result of which is twofold, that is, first, it evaporates or burns the greasy or oily substance usually covering or spotting the inner surface of the cap, thereby cleaning the said surface effectively, and, second, it heats the inner surface of the cap, whereby, when the impervious binding medium is deposited into the same, its contact surface with the cap is properly fused so that it is adapted to adhere perfectly to the inner surface of the cap. After the binding medium has been deposited into the cap, the exposed surface thereof is heated, resulting in a proper fusing of said surface. The binding medium being properly fused, a sealing disk or packing is placed into the cap, after which the assembled closure is subjected to pressure which firmly unites the parts thereof, the

binding material being partly or wholly hardened when the closure is discharged from the machine.

Referring now more particularly to the drawings, the numeral 30 indicates the supporting frame of the machine, for instance, casing-shaped, and provided with a horizontal top or table-section 31. A substantial distance below the table-section is joined in the frame the main driving shaft 32, to which rotation is imparted, for instance, by a belt running over a driving pulley 33, which is in any suitable manner rigidly fastened to the said shaft. Near one of the longitudinal edges of the table-section mounted upon the same a box-like structure 34, upon the top of which is disposed a plate member 35, having a longitudinal groove 36 in its underface, which is adapted to accommodate metallic caps that are fed therein in their inverted positions. This groove extends throughout the length of said plate member. Parallel to said groove, and particularly on each side thereof, is formed in the under face of said plate member a longitudinal recess 37, said recesses opening into said groove, and having slidably arranged therein each a feeding strip 38. These strips are adapted to reciprocate in the longitudinal direction of the box-like structure 34, and also transversely thereof toward and away from each other. Feeding strips 38 are provided in their opposite edges, denoted by the numerals 39, with registering substantially semi-circular notches 40, 40. The edges of these notches are adapted, when the feeding strips are moved toward and close to each other, to grip firmly the head portions of the metallic caps which are located in alignment with said notches in the groove 36, and, as said strips are advanced in the direction of the longitudinal axis of the box-like structure, to carry them forward a predetermined distance. The caps are brought in their inverted positions into the groove 36 on a chute 41, which receives them from a hopper or similar structure, the construction of which need not be described here as it does not form part of the present invention. The means for imparting to the feeding strips a to and fro motion in the direction of the longitudinal axis of the box-like structure 34, which motion will be hereinafter termed "reciprocating motion", includes a disk 42, which is keyed or otherwise attached to the driving shaft, and provided in one of its faces with a cam groove 43. In this groove is seated a roller 44, carried by a lever 45, one end of which is fulcrumed at 46 to the frame, its other end carrying a pin 47, that is seated in a slot 48 in the downwardly extending lug 49 of a substantially H-shaped block 50. The block is provided in each of its four lower

h a cylindrical bore 51, through which drawn two parallel horizontal rocking shafts 51', which are mounted in the box-structure 34 parallel to the longitudinal axis of the latter. The block 50 is shiftably engaged upon the said rocking shafts, and is provided in its upper face with transverse grooves 52, into which project lugs 53 upon the underfaces of the feeding strips 38. The grooves 52 are of a length to permit the feeding strips to move toward and away from each other; this movement will be termed hereinafter "the swinging movement of the feeding strips". The swinging movement of the feeding strips is effected by a bar 54, which is pivoted to a bracket 54', that is conducted in its up and down movement by vertical guides 55 upon the frame 30, the reciprocating movement of said bracket being caused by a roller 56, which is seated in the cam groove 43 and carried by said bracket. The upper end of the bar 54 is provided with a pin 57, seated in slots 58 of two bell-cranks 59, which are keyed, or otherwise attached, to the rocking shafts 51', the free ends of their other arms engaging apertures 60 in slides 61, in the upper faces of which are formed longitudinal grooves 62, into which project downwardly extending lugs 63 upon the under faces of the feeding strips 38. The slides 61 are located in recesses 61' in the upper face of the box-like structure, and are adapted to move toward and away from each other transversely of the said box-like structure.

From the foregoing it appears that the lever 45 causes a reciprocating motion of the feeding strips, and the bar 54 a swinging motion, that is to say a motion toward and away from each other. The cam groove 43 is shaped in such a manner and the rollers 44 and 56 disposed in such relation that, whenever the lever 45 swings toward the chute 41, the feeding strips are held in their open positions, that is to say away from each other, and, when the lever 45 has reached its outermost position in the direction stated, the feeding strips are caused by the bar 54 to move toward each other into gripping positions, the said feeding strips being kept in such gripping positions while the lever 45 moves in the opposite direction and until it has reached its outermost point in that direction, when the bar 54 causes said strips to recede from each other. When the lever 45 reaches its outermost position in the direction of the chute 41, its outermost notches are brought in operative relation to a cap just received from the chute. The feeding strips then move toward each other, grip the said cap and obviously those in front of the same, advance them a predetermined distance in the groove, and when reaching his position, the feeding fingers recede from each other, thereby leaving the caps at rest.

In this manner there are always a plurality of caps in the groove 36, arranged at distances from each other which correspond to the distances between the notches in a feeding strip. All caps in the groove are brought to rest simultaneously and are also advanced simultaneously.

A cap received from the chute comes first to rest in registering position with a circular opening 64 in the plate member 35. Above this opening is arranged a heating means, consisting, preferably, of a gas burner 65 of the "Bunsen" type to cause a complete combustion of the illuminating gas in order to prevent unconsumed particles of carbon settling on the inner surface of a cap. Inasmuch as the caps travel in the groove 36 in their inverted positions, the mouth of the burner must point downward, the flame being directed to the inner surface of a cap by compressed air that is conducted to the said burner. The result of this action will be two fold, first, it evaporates or burns the greasy or oily substance usually covering or spotting the inner surface of the cap, thereby cleaning the said surface effectively and, second, it heats the inner surface of the cap, whereby, when the impervious binding medium is deposited into the same, its contact surface with the cap will be properly fused so that it will be adapted to adhere perfectly to the inner surface of the cap. The removing of the oily or greasy substance materially aids such union.

After the inner surface of the cap has been heated in the manner described, it is brought by the feeding strips into registering position with a circular opening 66 in the plate member 35, stopping there to receive the binding medium. The binding medium is deposited into the cap in the form of a disk, which is cut from a strip 67 of suitably prepared paper or other material, that is wound upon a reel 68. This reel is journaled in the reel of the machine, the strip being conducted therefrom into a guide 69, to pass between the feeding rollers 70. The upper one of the feeding rollers is fixedly attached to a shaft 71, which is journaled in the frame of the machine and carries on its outer end a friction clutch 72. The clutch comprises a disk 73, keyed or otherwise attached to said shaft, and provided with a flange 74, in engagement with spring pressed dogs 75, which are carried by a lever, 76, the latter being loosely mounted upon the shaft 71, and provided with a pin 77 for actuating the same. When the lever 76 is swung in the direction of the arrow shown in Fig. 14 of the drawings, the disk 73 is given a turn through a corresponding distance, carrying with it the upper feeding roller 70, whereby the paper strip 67 is advanced a corresponding distance. When the lever 76 swings in

the other direction, obviously, the roller 70 remains stationary. The pin 77 is oscillated by means hereinafter to be described.

The rollers 70 advance the paper strip intermittently to the cutting means, comprising a tubular cutter 79, reciprocally arranged, in registering position with the opening 66, in a frame 80, that is disposed above the plate member 35. To the cutter 79 is secured a horizontally extending arm 81, carrying an actuating arm 82, to one end of which is pivoted at 83 the rod 84 of an eccentric 85, that is keyed, or otherwise attached, to the main driving shaft 32. To guide the movement of the actuating arm 82, its other end is pivoted at 86 to one end of a rod 87, the other end of which, in turn, is secured at 88 in a similar manner to a link 89, that is fulcrumed at 90 to the frame of the machine. Upon the downward movement of the cutter 79, a disk of binding material is cut from the strip 67, said disk being automatically forced, upon the upward movement of the cutter, by a stem 91 into the metallic cap. The stem 91 is slidably arranged in guides 92 within the cutter, and carries upon its upper end a weight 93. When, therefore, the cutter 79 moves upward, the weight 93 will force the stem 91 downward and thereby the paper disk into the cap. After this, upon the further upward movement of the cutter, the uppermost one of the guides 92 will engage the weight 93 and lift thus the stem 91 out of the opening 66 in the plate member 35. Around the opening 66 is formed a water jacket 66', in which circulates a cooling fluid to prevent the strip 67 from being affected by the heat of the burner 65.

The means for actuating the lever 76 of the friction clutch comprises a slide 94, which is reciprocally arranged in a vertical guide 95, formed upon the frame 80. This slide is provided with a horizontal slot 96, in which is seated the pin 77 of the lever 76, and in the guide 95 is formed an arc-shaped slot 97, through which the pin 77 projects. Within the slide 94 is disposed a catch 98, pivoted at 99 to the said slide and provided upon its upper end with a hook 100. A spring 101 tends to force the said catch toward and into engagement with one of the sides of the guide 95. A second slide 102 is also reciprocally arranged in the guide 95, and attached to the arm 81. To this slide is pivoted at 103 a downwardly extending pawl 104, its hook 105 being adapted to engage the hook 100 of the catch 98. A spring 106 forces the hook 105 of the pawl 104 toward and into engagement with the hook 100 of the catch 98. To the guide 95 is pivoted at 107 a lever 108, its lower end carrying a sleeve 109 which is seated in the opening 64 in the plate member 35, while its upper end is provided with a pin 110, which is adapted

to project through an aperture 111 in the wall of the guide 95 into the latter. The front edge 109' of the sleeve 109 is tapered. Normally the hook 100 of the catch 98 is in engagement with the hook 105 of the pawl 104 as will be presently described; when, therefore, the arm 81 moves upward, the slide 94 moves therewith and thereby causes the lever 76 of the friction clutch to swing in the direction of the arrow shown in Fig. 14 of the drawings, advancing thus the paper strip a predetermined distance. Upon the downward movement of the arm 81, the paper disk is cut and deposited in the manner above described into the cap, the slide 94 being lowered by the slide 102, contacting therewith, thereby swinging the lever 76 in the opposite direction, during which movement obviously the shaft 71 of the feeding roller 70 remains stationary. If during the downward movement of the slides 94 and 102 there is no cap in registering position with the circular opening 64, the sleeve 109 drops to the bottom of the groove 36, the pin 110 being thus withdrawn from the guide 95. The spring 101 will then disengage the hook 100 of the catch 98 from the hook 105 of the pawl 104. When, therefore, the slide 102 moves upward, it will not carry with it the slide 94, and for this reason the paper strip 67 will not be advanced. In such case, obviously, upon the next downward movement of the cutter 79, no binding disk will be cut. In other words, whenever the feeding strips fail to bring a cap in registering position with the opening 66, no paper disk is cut, nor is one forced through the opening 66 into the groove 36. If a cap is brought into proper position relative to the opening 64, the said cap engages the front edge 109' of the sleeve 109 and lifts the same, thereby causing the pin 110 to project into the guide 95 and to force the hook 100 of the catch 98 against the action of the spring 101 into the path of the hook 105 of the pawl 104. The slide 94 is thus carried upward during the next upward movement of the cutter, and the paper strip fed in operative relation to said cutter.

After the binding medium has been deposited into the cap, the latter is advanced by the feeding strips, and stops in registering position with a circular opening 112 in the plate member 35, above which is disposed a burner 113, that is similar in construction to the one above mentioned. The exposed surface of the binding disk is heated thereby, this heating action resulting in a proper fusing of the exposed surface; the flame which is directed to the said surface by compressed air causing at the same time the binding medium to assume the shape of the inner surface of the cap.

The binding medium having been properly fused, the cap is advanced by the feed-

ing strips, and stops in registering position with a circular opening 114 in the plate member 35, where it receives a sealing disk or packing of cork or the like. The sealing disks are placed into a vertical tube 115, held upon the frame 80, said tube being provided with a longitudinal slot 116, through which a finger piece 117 of a weight 118 protrudes, said weight being placed on top of said sealing disks, and serves to feed them to a conveyer 119, which engages the lowermost of the disks in the tube and transports it into registering position with the circular opening 114. This opening tapers toward the plane of the top portion of the box 34, its upper diameter being larger than that of a sealing disk and its lower diameter being somewhat smaller than that of a disk. The purpose of this arrangement will be explained hereinafter. The conveyer 119 is made in the form of an oscillating plate, which is pivoted at 120 to the plate member 35, its acting end being provided with a notch 121, that is adapted to accommodate a sealing disk. The conveyer 119 is actuated by a lever 122, which is fulcrumed at 123 to the frame 80, and connected by a link 124 with said conveyer; said link being pivoted at 125 and 126 to the said lever and conveyer, respectively. The lever 122 is actuated by a slide 127, reciprocally disposed within a guide 128, the latter being formed upon the frame 80. This slide is provided with a cam 129, projecting through a slot 130 in said guide. The cam bears against the inclined face 131 of the lever 122, the latter being held in contact with said cam by springs 132, which are fastened to the said lever and the frame. The inclined face 131 of the lever is, preferably, formed by a blade spring 133, fastened to the lower end of the lever, and adapted to be adjusted by a set screw 134 to predetermine the swing of the lever. To the slide 127 is pivoted a spring pressed catch 135, which is in all respects identical in construction with the catch 98 above described, and adapted to cooperate with a pawl 136, carried by a slide 137, the latter two elements being similar in construction to the slide 102 and the pawl 104 above described. The slide 137 is attached to the arm 81 above described. A lever 138 is pivoted to the guide 128, said lever being similar to the lever 108 above described, its sleeve 139 being disposed in the opening 112. If a cap is located in the groove 36 in registering position with the opening 112, to be brought into registering position with the opening 114 at the next forward movement of the feeding strips, the lever 138 swings the catch 135 into the path of the pawl 136. The slide 127 will thus be carried upward by the arm 81 and actuate by means of its cam 129 by the intermediary of the lever 122 the conveyer 119, the latter transporting a

sealing disk into registering position with the opening 114. The springs 132 return the conveyer and the parts cooperating therewith to their normal positions. Obviously, if there is no cap brought to the opening 112, the slide 127 is not lifted by the slide 137, and the conveyer 119 remains, therefore, stationary. The sealing disk is forced into the cap by an assembling plunger 140, which is reciprocally arranged in the frame 80 and attached to the arm 81. During the downward movement of the plunger 140, the disk is forced by said plunger through the tapering opening 114 into the cap. It should be noted that, since the diameter of the lower end of the opening 114 is smaller than that of a sealing disk, the latter will be compressed to some extent, and, when forced into the cap, will expand and be held thus firmly in the cap. The cap, when in registering position with the opening 114, rests upon a die 141 in the form of a screw bolt, its upper face 142 being concave, conforming thus to the shape of the outer face of the head of a cap.

The assembled crowns are advanced by the feeding strips to a uniting head 143, comprising a disk 144, keyed or otherwise attached to a vertical shaft 145. To this shaft is fixedly attached a worm gear 146, the teeth of which mesh with a worm 147, that is carried by the main driving shaft 32. With the disk 144 are made integral, or there may be attached thereto by means of spokes 148, two rings 149 and 150. These rings are disposed above the disk 144 a suitable distance from each other, as clearly shown in Fig. 2 of the drawings. A plurality of vertically disposed plungers 151 are slidably arranged in the rings 149 and 150, said plungers being located parallel to the shaft 145, and their lower ends being adapted to be forced by springs 152 into contact with the disk 144. The upper ends of the plungers, which project above the ring 150, are provided each with a peripheral recess 153, which is adapted to be engaged by a stationary cam 154, said cam being formed upon a plate 155, that is disposed in parallel relation to the ring 150 above the same. The cam is arranged in the path of the peripheral recesses of the plungers, whereby, as the uniting head rotates, said plungers will be raised by said cam, their springs lowering them as soon as disengaged from said cam. The cam raises a plunger before it arrives opposite to the feeding strips, and is disengaged from said plunger after it has left the said feeding strips. When a plunger arrives in registering position with the feeding strips, an assembled crown is placed upon the disk 144 beneath said plunger and, after the said plunger has been disengaged from the cam, its spring 152 will force the same

against the assembled crown cork, placing thereby the closure under compression and holding it in this condition until the closure makes nearly a full revolution around the shaft 145, when the plunger again arrives at the cam and is disengaged from the closure, allowing the latter to be guided by a projection 156 into a chute 157, to slide into a receptacle placed beneath the same.

10 It is obvious that the binding material in the closure is still in its fused or softened condition when arriving upon the disk 144, so that this binding medium, due to the pressure, will firmly unite the parts of the closure, the binding medium being partly
15 or wholly hardened when the closure is discharged into the chute.

It is obvious that the outer face of the cap is in no way affected by heat. The decoration thereon will, therefore, remain in its original state; furthermore both faces of the binding medium are properly fused with a result that a firm union is obtained between the parts of the closure.

25 The operation of the machine is obvious from the foregoing. It is to be noted that a simple and effective cap transporting mechanism is obtained, means being provided for preventing the advancing of the coated paper strip, the cutting and depositing of a binding disk and the feeding of a sealing disk in case caps are not brought in operative relation to the binding material depositing and sealing disk inserting elements of the machine.

What I claim is:—

1. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for subjecting the inner face of the head of a metallic cap to heat, of means for inserting a binding material into the cap, means for applying heat directly to the exposed face of the binding material, means for depositing a sealing disk into the cap on top of the fused binding material, and means for conveying the cap in succession to each of the elements mentioned.

2. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for subjecting the inner face of the head of a metallic cap to heat, of means for inserting a binding material into the cap, means for applying heat directly to the exposed face of the binding material, means for depositing a sealing disk into the cap on top of the fused binding material, means for holding the sealing disk under pressure within the cap after the parts are assembled and while the binding material is hardening, and means for conveying the cap in succession to each of the elements mentioned.

3. In a machine for the manufacture of bottle closures of the cap variety, the com-

bination with transporting means for a metallic cap, of means for depositing a sealing disk into the cap, a conveyer for carrying the sealing disk to said depositing means, a swinging lever connected to said conveyer, a continuously reciprocating slide, a second slide, coacting means upon said two slides adapted to connect the same, whereby said slides are caused to move together, means upon said second slide for actuating, when moving in one direction, said lever, whereby said conveyer brings a sealing disk into registering position with said depositing means, and means cooperating with said connecting means upon said second slide and actuated by the caps upon said transporting means, whereby said last named connecting means is brought into operative position in relation to said connecting means upon said first slide when said transporting means brings a cap into registering position with said depositing means.

4. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for depositing a sealing disk into the cap, a conveyer for carrying the sealing disk to said depositing means, a swinging lever connected to said conveyer, a continuously reciprocating slide, a second slide, a pawl upon said first slide, a catch upon said second slide adapted to coact with said pawl so as to connect said two slides, whereby they are caused to move together, means upon said second slide for actuating, when moving in one direction, said lever, whereby said conveyer brings a sealing disk into registering position with said depositing means, and means cooperating with said catch and actuated by the caps upon said transporting means, whereby said catch is brought into operative position in relation to said pawl when said transporting means brings a cap into registering position with said depositing means.

5. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for cutting a disk from a strip of binding material and inserting it into the cap, a roller for feeding the strip to said cutting means, a clutch connected with said roller, a continuously reciprocating slide, a second slide, coacting means upon said two slides adapted to connect the same, whereby said slides are caused to move together, means upon said second slide for rendering, when moving in one direction, said clutch operative, whereby said roller advances the strip of binding material toward said cutting means, and means cooperating with said connecting means upon said second slide and actuated by the caps upon said transporting means, whereby said last named connecting means is brought into

operative position in relation to said connecting means upon said first slide when said transporting means brings a cap into registering position with said inserting means.

6. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for cutting a disk from a strip of binding material and inserting it into the cap, a roller for feeding the strip to said cutting means, a clutch connected with said roller, a continuously reciprocating slide, a second slide, a pawl upon said first slide, a catch upon said second slide adapted to coact with said pawl so as to connect said two slides, whereby they are caused to move together, means upon said

second slide for rendering, when moving in one direction, said clutch operative, whereby said roller advances the strip of binding material toward said cutting means, and means coöperating with said catch and actuated by the caps upon said transporting means, whereby said catch is brought into operative relation to said pawl when said transporting means brings a cap into registering position with said inserting means. 20 25

Signed at New York, in the county of New York and State of New York, this 2nd day of July A. D. 1913.

ALEXANDER BOGDANFFY.

Witnesses:

JOHN ALBERTI,
SIGMUND HERZOG.

1486

A. BOGDANFFY.

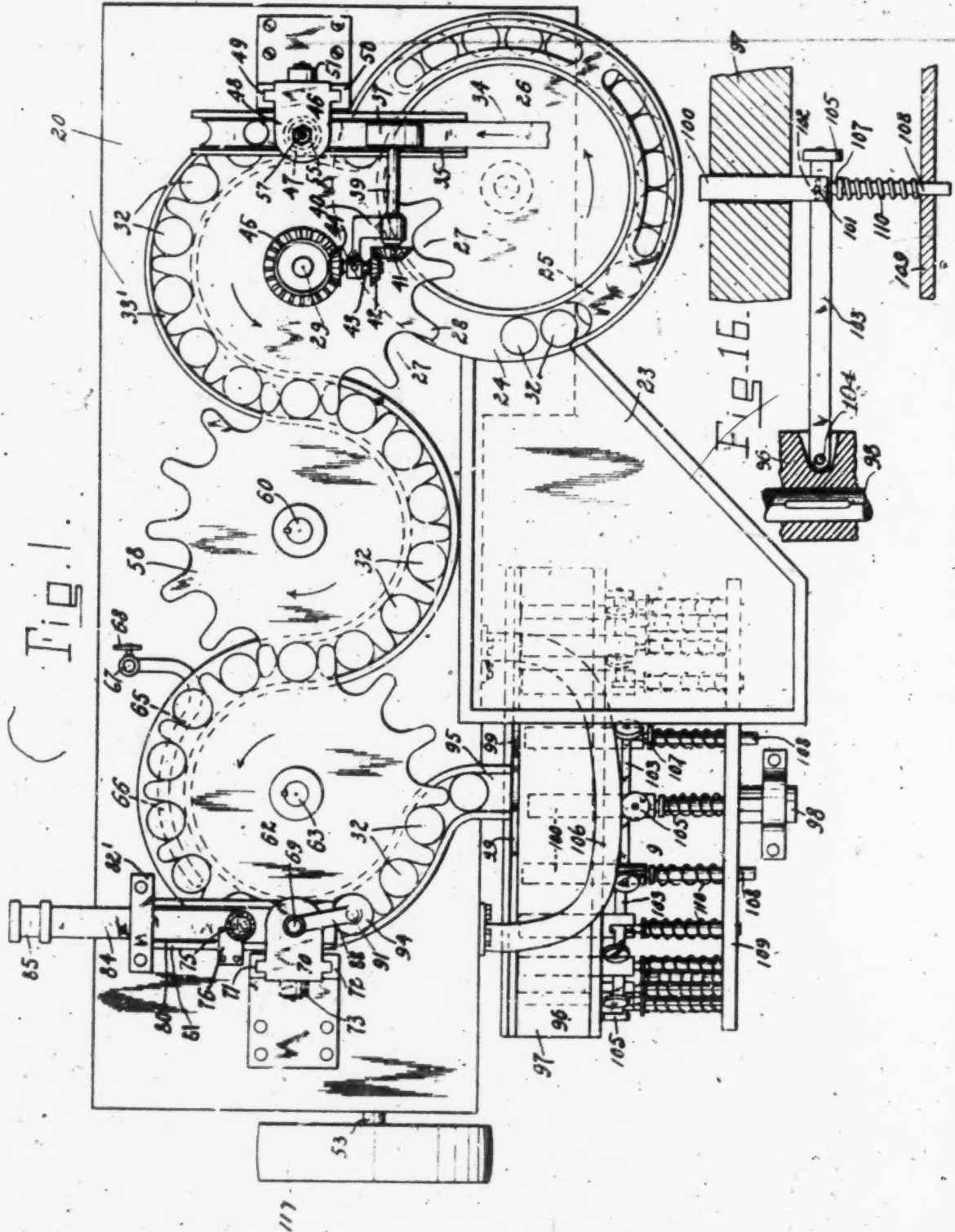
MACHINE FOR THE MANUFACTURE OF BOTTLE CLOSURES.

APPLICATION FILED MAY 27, 1911.

1,053,565.

Patented Feb. 18, 1913.

3 SHEETS-SHEET 1.



WITNESSES
To Rhine
S. Birnbaum

INVENTOR
Alex Bogdanffy
 BY
Simone Herzog
 his ATTORNEY

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A. BOGDANFFY.

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3 SHEETS—SHEET 2.

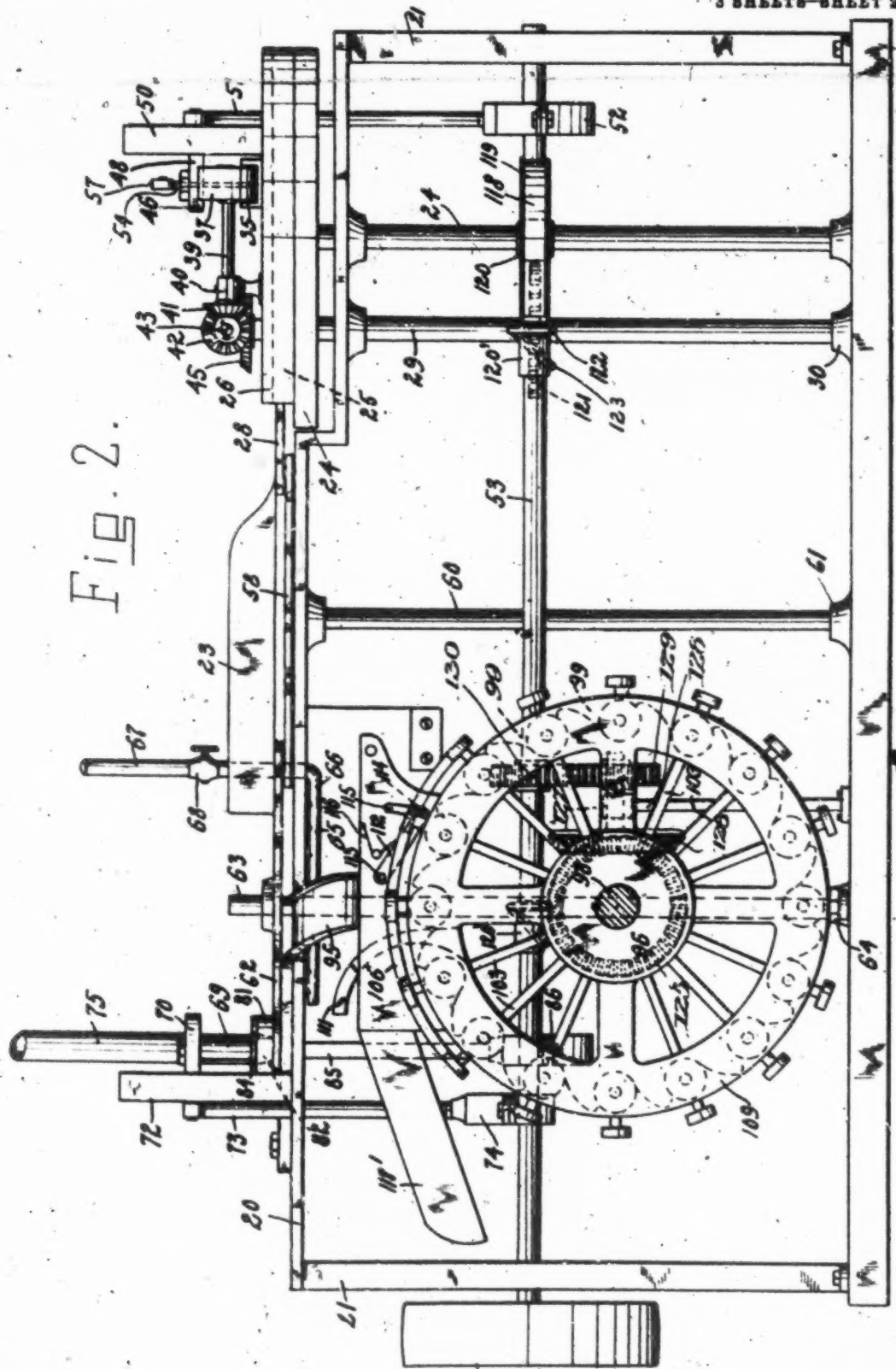


Fig. 2.

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W. Rink
S. Birnbaum

INVENTOR

Alex Bogdanffy
BY
Sigmund Herzog
his ATTORNEY

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Fig. 15.



Fig. 12.

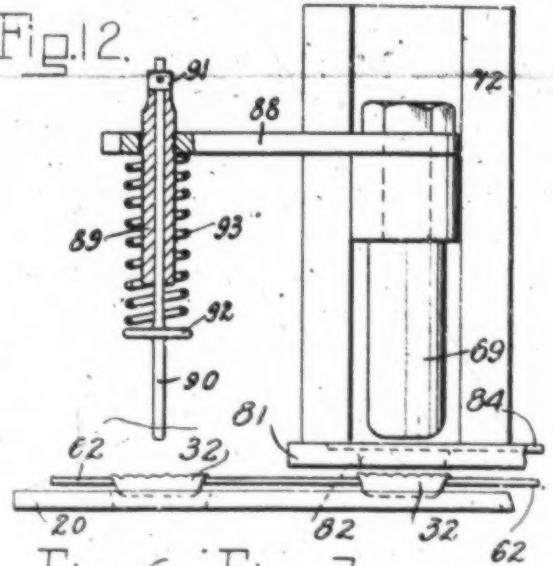


Fig. 3. Fig. 4. Fig. 5. Fig. 6. Fig. 7.

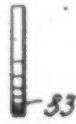


Fig. 8.

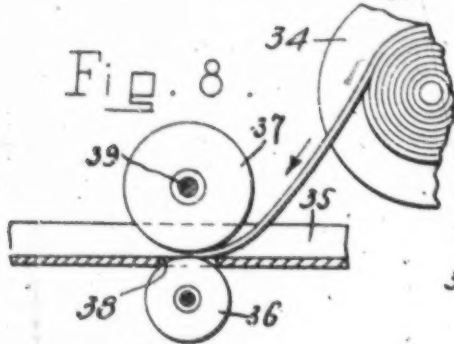


Fig. 9.

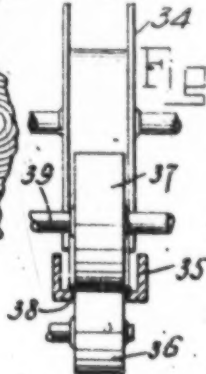


Fig. 13.

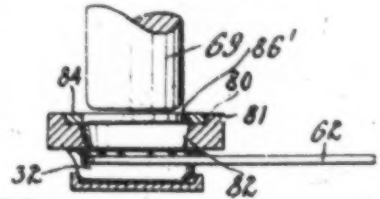


Fig. 11.

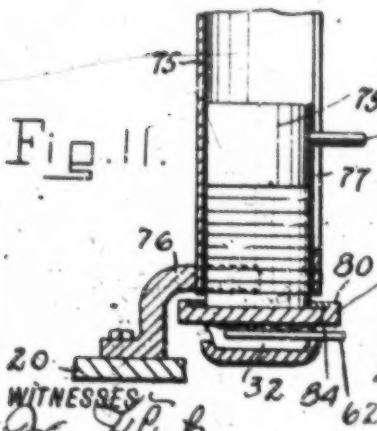


Fig. 10.

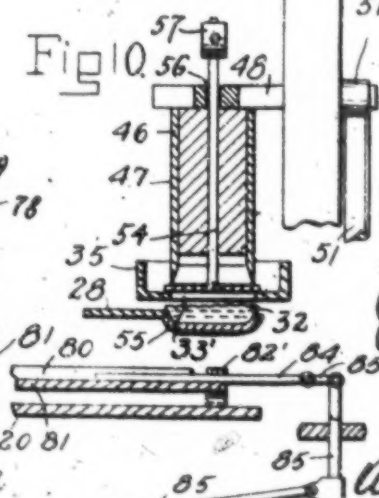
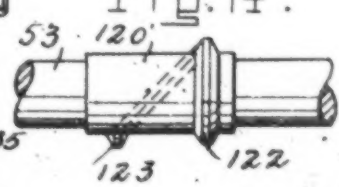


Fig. 14.



WITNESSES

S. Bimbaum



Fig. 17.

Alex Bogdanffy
INVENTOR
BY
Sigmund Steeg
ATTORNEY

UNITED STATES PATENT OFFICE.

ALEXANDER BOGDANFFY, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

MACHINE FOR THE MANUFACTURE OF BOTTLE-CLOSURES.

1,053,565.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Application filed May 27, 1911. Serial No. 629,871.

To all whom it may concern:

Be it known that I, ALEXANDER BOGDANFFY, a subject of the King of Hungary, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Machines for the Manufacture of Bottle-Closures, of which the following is a specification.

The present invention relates to machines for the manufacture of bottle closures of the class known as "crown cork sealing caps or closures". Closures of this type comprise usually three parts, that is a metallic cap or crown, having a corrugated flange to be locked to the exterior of the bottle neck, a sealing disk or packing of cork or the like, and a disk of impervious binding material interposed between the metallic cap and the cork disk. These caps have been manufactured heretofore in the following manner: The three parts mentioned are assembled and the closure, as a whole, is then subjected to heating action, whereby the interposed impervious binding material is softened or fused so that, when pressure is applied to the closure, the impervious binding medium will firmly unite the packing disk with the metallic cap or crown. This process of manufacture has, however, several defects, to wit: The packing disks are liable to be injured by the heating action, no matter whether they are of cork or of a composite type. If cork sealing disks are employed, they will lose to some degree their toughness, or in other words they will become brittle, whereby the sealing properties of the same will be impaired to a great degree. If, on the other hand, sealing disks of a composite type are used, they might be rendered entirely useless for the reason that they contain a fusible material, which is, of course, affected by the heat. Another defect of the process of manufacture hereinbefore mentioned consists in that, when the parts are assembled, the diameter of the metallic cap is slightly reduced so as to grip the sealing disk. When now, after the assembling, the closure is heated, the moisture and air between the members of the closure cannot escape. Moreover, when then the parts are subjected to heating action, the air will be expanded and act as a cushion, as it were, when the closure is subjected to pressure,

and thus prevent a firm union between the parts thereof.

The object of the present invention is to obviate these defects mentioned, and with this and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the combination, arrangement and construction of parts hereinafter fully described, pointed out in the appended claims and illustrated in the accompanying drawings, it being understood that many changes may be made in the size and proportion of the several parts and details of construction without departing from the spirit or sacrificing any of the advantages of the invention.

One of the many possible embodiments of the invention is illustrated in the accompanying drawings, in which:—

Figure 1 is a plan view of a device constructed in accordance with the present invention; Fig. 2 is a front elevation thereof; Fig. 3 is a sectional view of a metallic cap inverted or in the position in which it passes to the machine ready to receive the other parts of the composite sealing closure; Fig. 4 is a plan view of the sealing disk of the closure; Fig. 5 is a front elevation thereof; Fig. 6 is a plan view of an impervious binding disk which is inserted into the metallic cap; Fig. 7 is a front elevation thereof; Fig. 8 is a sectional view of the means for feeding the strip of paper from which the binding disks are cut out; Fig. 9 is a front elevation of the device shown in Fig. 8; Fig. 10 is a vertical section taken through the means for cutting the strip of paper; Fig. 11 is a vertical section taken through the sealing disk holding means; Fig. 12 is a side elevation, partly in section, of the means for forcing the sealing disk into the metal cap; Fig. 13 is a sectional view of the means for conveying the sealing disk to the metallic cap; Fig. 14 is a detail view of a worm for intermittently rotating the transporting means of the device; Fig. 15 is a plan view of a transporting wheel; Fig. 16 is a detail of construction of the pressure applying means of the apparatus; and Fig. 17 is a side elevation, partly in section, of a further detail of construction.

In the drawings, the numeral 20 indicates a horizontal table, which is supported by legs or standards 21, the latter being at-

tached in any suitable manner to the floor. Above the plane of the table 20 is arranged a substantially horizontal support 23 onto which the metallic caps are placed in their
 5 inverted positions, to be passed manually to a continuously rotating carrying disk 24, which conveys the caps, one after the other, along a channel 25 in the direction of the arrow indicated in Fig. 1 of the drawings,
 10 which channel is formed between the said carrying disk 24 and a cover plate 26. This cover plate is attached to the table 20 in any suitable manner. The carrying disk 24 feeds the inverted caps or crowns one after the
 15 other to the recesses 27 of a star wheel 28, which is attached to a vertical shaft 29, journaled in the table 20 and in a bearing 30. To this shaft intermittent rotary motion is imparted in the direction of the arrow by
 20 means which will be hereinafter described. The star wheel 28 overlies partly the carrying disk 24, engages the flange portions 31 of the caps 32, and conveys them along a groove 33' in the table 20 to rest directly
 25 beneath the means which cuts the impervious binding disk 33 from a strip of suitably prepared paper or other material, and places the disk into the inverted cap.

The paper strip, from which the disks 33 are cut, is wound upon a reel 34, which is suitably journaled in the frame of the machine, and from which the strip is conducted into a guide 35 to pass between the feeding rollers 36 and 37. The feeding roller 36
 35 is journaled in the frame of the machine and projects through a slot 38 in the guide 35 above the lower plane of the latter, while the spindle 39 of the roller 37 is journaled in a bearing 40, and carries at its outer end
 40 a bevel gear 41, meshing with a similar gear 42, upon the shaft 43, upon the opposite end of which is mounted another bevel gear 44 in mesh with a similar gear 45, which latter is attached to the shaft 29 of the star
 45 wheel 28. It will be observed that the feeding rollers 36 and 37 will thus rotate intermittently, and advance the paper strip to the cutting means 46. The cutting means comprises a tubular cutter 47, secured in any
 50 suitable manner to an arm 48, which is slidably arranged in a vertical guideway 49 of a bracket 50, attached to the table 20. The arm 48 is pivotally engaged by a rod 51, which is fastened to the strap of an eccentric
 55 52, the latter being mounted upon the main driving shaft 53 of the machine. The driving shaft is journaled in bearings, which are secured to or made integral with the standards or legs 21. As the paper disk is
 60 cut from the strip, it will be automatically forced, upon the upward movement of the cutter 47, by a stem 54 through a hole 55 in the guide 35 into the metallic cap. The stem 54 projects through an opening 56 of
 65 the arm 48 above the plane of said arm and

carries upon its upper end a weight 57. When therefore the cutter 47 moves upward the weight 57 will force the stem 54 downward and thereby the paper disk into the cap. After this, upon the further upward
 70 movement of the arm 48, the latter will engage the weight 57 and lift thus the stem 54 out of the hole 55 in the guide 35. The paper disk having been deposited in the metal cap, the latter will be transported by
 75 the wheel 28 within the reach of a star wheel 58, which rotates in a direction opposite to that of the star wheel 28 and lies in a plane below that of the wheel 28, engaging thus the heads 59 of the metal caps 32. The star
 80 wheel 58 is mounted upon a shaft 60, which is suitably journaled in the frame and in a bearing 61. The caps and paper disks are by the wheel 58 brought within the reach of a third star wheel 62. This star wheel
 85 overlies partly the wheel 58 and engages the metal caps at their flange portions 31, transporting the same intermittently to the means which force the sealing disks into the caps. The star wheel 62 is attached to a shaft 63,
 90 mounted in the frame of the machine and in a bearing 64. This shaft moves also intermittently, and is actuated also from the main driving shaft 53 in a manner hereinafter to be specified.

While being transported by the wheel 62, the caps and the binding disks therein are heated by a suitable heating means, for instance a gas heater 65. This heater comprises a perforated tubular member 66, connected with the gas supply pipe 67, the communication being controlled by a valve 68. The heater is, preferably, arranged below the table 20. The heat is transmitted to the binding disks by the metal caps directly in
 100 contact with the table. The binding material is thus fused or softened for the purpose of uniting the sealing disk to the cap, and for other well known purposes. After heating, the caps are transported by the
 105 wheel 62 to an assembling plunger 69, attached to an arm 70, which is slidably arranged in a vertical guide 71 of a bracket 72. The arm 70 is pivotally connected with a rod 73, which is fastened to the strap of an eccentric 74, the latter being keyed to the main driving shaft 53. The sealing disks are placed into a substantially vertical tube
 110 75, which is attached to the table 20 by means of a bracket 76 or otherwise, and is provided with a longitudinal slot 77 through which a finger piece 78 of a weight 79 protrudes, said weight being placed on the sealing disks, and serves to feed the said disks into a guideway 80 of a plate member 81,
 115 which is attached to the table by a bracket 82' in a plane above the plane of the star wheel 32. The plate 81 is provided with an aperture 82 in alignment with the plunger 69. This aperture tapers toward the plane 120

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of the wheel 62, its upper diameter being larger than the diameter of a sealing disk 83, and the diameter at its lower end being somewhat smaller than that of a sealing disk. The purpose of this arrangement will be explained presently. The sealing disks are conveyed in the guideway 80 from below the tubular member 75 to the aperture 82 by a reciprocable conveyer 84, which is slidably arranged in the guideway 80, and connected by a plurality of links and rods 85, 85 with the strap of an eccentric 86, which is keyed to the main driving shaft 53 of the machine. The conveyer 84 is provided with a recess 86', which engages the sealing disk in transferring the same to the aperture 82. Obviously the angular relation of the eccentrics 74 and 86 must be such that when the plunger 69 is lifted, the conveyer 84 will move inward and transfer thereby a sealing disk within the reach of the plunger 69, which, in its downward movement, will force the cork disk through the aperture 82 into the metal cap. It should be noted that since the diameter of the lower end of the aperture 82 is smaller than that of the sealing disk, the latter will be compressed to some extent and, when forced into the cap, will expand and be held thus firmly in the cap.

As it happens sometimes that one or the other of the recesses in the star wheel 62 does not contain a metal cap, it becomes necessary to eject the sealing disk from that recess after it has passed the plunger 69. For this purpose the plunger 69 carries a bracket 88, to which a downwardly extending tubular member 89 is attached, in which is slidably arranged a spindle 90, provided upon its upper end with a stop 91 and near to its lower end with a disk 92. Against this disk and the bracket 88 bears a spring 93, tending to force the spindle 90 downward into the recesses of the star wheel 62. The distance between the longitudinal axes of the plunger 69 and the spindle 90 is equal to the distance between two neighboring recesses in the star wheel 62. When therefore the plunger 69 is forced downward to press a sealing disk into the metal cap beneath it, the spindle 90 will be forced into the neighboring recess of the star wheel. If an assembled crown cork is in this recess, the spring 93 will be compressed by the upward movement of the spindle 90. If, however, only a sealing disk is seated in the recess, the spindle 90 will force the same through an opening 94 in the table into a receptacle below said opening, for the reason that the tension of the spring 93 is greater than the resistance offered by the sealing disk in the recess.

The assembled crowns slide down an inclined passage 95 to the uniting head 96. This head comprises a rotary drum 97, keyed

to a shaft 98, which is continuously driven from the main driving shaft 53. The drum is provided with a plurality of peripheral recesses 99, which are adapted to receive, one after the other, assembled crown corks from the passage 95. Plungers 100 are slidably arranged in the drum in alinement with the recesses, said plungers being located parallel with the longitudinal axis of the drum, and provided at their outer forked ends each with a pin 101, which engages slots 102 in radial arms 103, the inner ends of which are pivoted at 104 to the hub of the drum, while their upper free ends carry rollers 105, which are adapted to coast with a cam 106, attached to the frame of the machine. The arms 103 are engaged by the pointed ends 107 of spring pressed pins 108, which are slidably mounted on a ring 109, attached to the shaft 98. The cam 106 is arranged in the path of the rollers 105, whereby, as the drum 97 rotates, the plungers 100 will be forced against the action of the springs 110 upon the pins 108 out of the recesses 99 in the drum before they arrive opposite to the passage 95. When a recess arrives at this point, a crown cork will slide into the same, and after the corresponding roller 105 is disengaged from the cam, the spring 110 will force the plunger against the assembled crown cork, placing thereby the parts of the closure under compression, and holding it in this condition until the closure makes very nearly a full revolution around the shaft 98, when the roller of the plunger again arrives at the cam 106, whereby the plunger is disengaged from the closure, allowing the closure to be guided by a projection 111 into a chute 111'. It is obvious that the binding disk in the closure is still in its fused or softened condition when arriving in a recess of the drum 97, so that this binding medium, due to the pressure, will firmly unite the parts of the closure, the binding medium being partly or wholly hardened when the closure is discharged into the chute 111'. It is to be noted that an intimate union is formed between the sealing disk and the metal cap as there is no air between the said two parts to prevent such union. The sealing disk, on the other hand, is in its original tough condition, as it has not been subjected to the influence of the heating means upon the machine.

A tongue 112 is pivoted at 113 to a stationary part of the frame, its free end being provided with a pin 114, engaging an arc-shaped slot 115 in the frame. A spring 116 forces the tongue 112 into contact with the drum, so that closures, which are not properly seated in their recesses, will be forced into the same before the plunger engages them.

Motion is imparted to the entire mechanism through the intermediary of a pulley

117, which is keyed to the main driving shaft 53. The shaft 24' of the continuously rotating disk 24 is driven by a belt 118, running over pulleys 119 and 120, attached to the shafts 24' and 53, respectively. The shafts 29 and 63 are driven by worms 120', 120' upon the main driving shaft 53, engaging worm gears 121, 121 upon the shafts 29 and 63. The worms 120', 120' have straight portions 122, and while these are engaging the worm gears 121, 121, the latter are at rest. When the inclined portions 123, 123 of the worms 120' coast with a tooth of the worm gears the same will be rotated a given distance, whereby the star wheels will transport the crowns a corresponding distance. The star wheel 58 may be either driven continuously from the shaft 53, or driven by the star wheel 62 through the intermediary of the metal caps engaged by both wheels. The shaft 98 is also actuated from the main shaft 53. For this purpose a bevel gear 125 is mounted upon the shaft 98 and meshes with a similar gear 126, keyed to a shaft 127, which is journaled in a bearing 128. Upon the shaft 127 is furthermore mounted a spur gear 129, meshing with a similar gear 130, the latter being fixedly attached to the shaft 53.

What I claim is:—

1. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for placing a disk of impervious binding material into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said sealing disk depositing means and said means which place the binding disk into the cap, and means for holding the sealing disk under pressure within the cap after the parts are assembled and while the binding material is hardening.

2. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for placing a disk of impervious binding material into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said sealing disk depositing means and said means which place the impervious binding disk into the cap, a rotary drum having a plurality of recesses into which the assembled closures are fed, and a plurality of spring pressed plungers for holding the sealing disks under pressure within the caps in said recesses while the binding material is hardening.

3. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for placing an impervious fusible binding material into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said sealing disk de-

positing means and said means which place the impervious binding material into the cap, and means for holding the sealing disk under pressure within the cap after the parts are assembled and while the binding material is hardening.

4. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for cutting disks from a strip of impervious binding material and forcing a disk into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said cutting means and sealing disk depositing means, and means for holding the sealing disk under pressure within the cap after the parts are assembled and while the binding material is hardening.

5. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for cutting disks from a strip of impervious binding material and forcing a disk into a cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means interposed between said cutting means and sealing disk depositing means, a rotary drum having a plurality of recesses into which the assembled closures are fed, and a plurality of spring pressed plungers for holding the sealing disks under pressure within the caps in said recesses while the binding material is hardening.

6. In a machine for the manufacture of bottle closures of the cap variety, the combination with means for cutting disks from a strip of impervious binding material and forcing a disk into the metallic cap, of means for depositing a sealing disk into the cap on top of the binding material, heating means inserted between said cutting means and sealing disk depositing means, a rotary drum having a plurality of recesses into which the assembled closures are automatically fed, and a plurality of spring pressed plungers for holding the sealing disks under pressure within the caps in said recesses while the binding material is hardening.

7. In a machine for the manufacture of bottle closures of the cap variety, the combination with a rotary drum having a plurality of peripheral recesses, of means for feeding an assembled closure into each of said recesses, plungers slidably arranged in said drum in alignment with said recesses having fork shaped ends, radial arms pivoted to said drum corresponding in number to said plungers engaging the fork shaped ends of said plungers and projecting above the plane of the same, yielding connections between said plungers and radial arms, spring pressed pins engaging said radial arms for applying pressure to the closures in the recesses to unite the parts thereof, rollers carried by the free ends of

said arms, and a cam in the path of said rollers for forcing said plungers away from said recesses before they arrive opposite to said feeding means.

5 8. In a machine for the manufacture of bottle closures of the cap variety, the combination with a rotary drum having a plurality of peripheral recesses, of means for feeding an assembled closure into each of
10 said recesses, plungers slidably arranged in said drum in alinement with said recesses having fork shaped ends, radial arms pivoted to said drum corresponding in number to said plungers engaging the fork
15 shaped ends of said plungers and projecting above the plane of the same, yielding connections between said plungers and said arms, spring pressed pins engaging said radial arms for applying pressure to the
20 closures in the recesses to unite the parts thereof, rollers carried by the free ends of

said arms, and a stationary cam in the path of said rollers for forcing said plungers away from said recesses before they arrive opposite to said feeding means.

25 9. In a machine of the character set forth, in combination, means for inserting a cementing material in a cap, means for heating and fusing said material while in said cap, means for registering a sealing gasket with
30 said cap, means for forcing said gasket into contact with said fused cementing material, and means for maintaining said contact until said cementing material is set.

Signed at New York, in the county of 35
New York and State of New York this 18th day of May, A. D. 1911.

ALEX. BOGDANFFY.

Witnesses:

SIGMUND HERZOG,
S. BIRNBAUM.

1494

A. BOGDANFFY.

PROCESS OF MANUFACTURING BOTTLE CLOSURES.

APPLICATION FILED SEPT. 9, 1911. RENEWED AUG. 7, 1912.

1,053,898.

Patented Feb. 18, 1913.

4 SHEETS—SHEET 1.

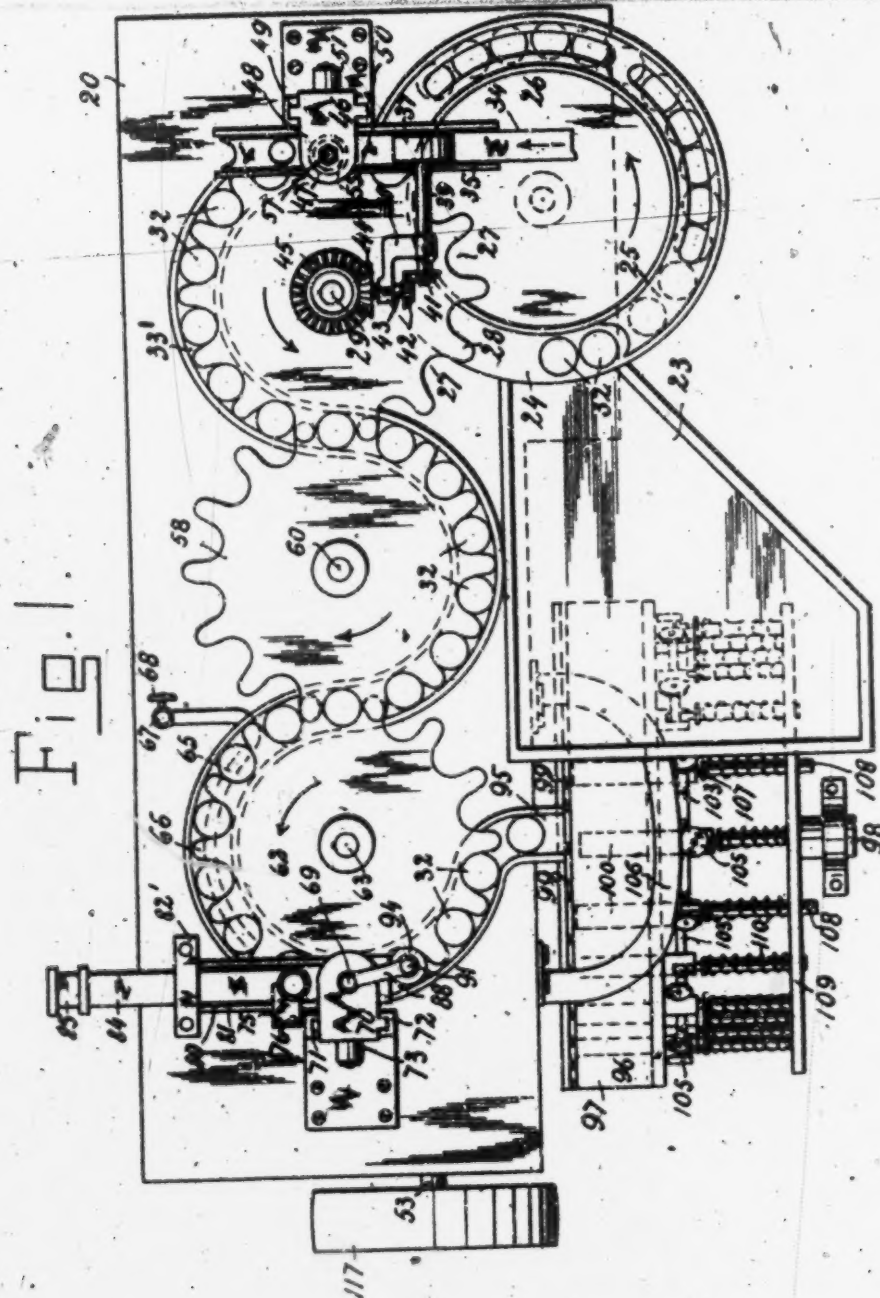


Fig. 1.

WITNESSES

Dr. Klein
S. Bismarck

INVENTOR

Alex Bogdanffy
by Sigmond Herzog
his ATTORNEY

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A. BOGDÁNYFY.

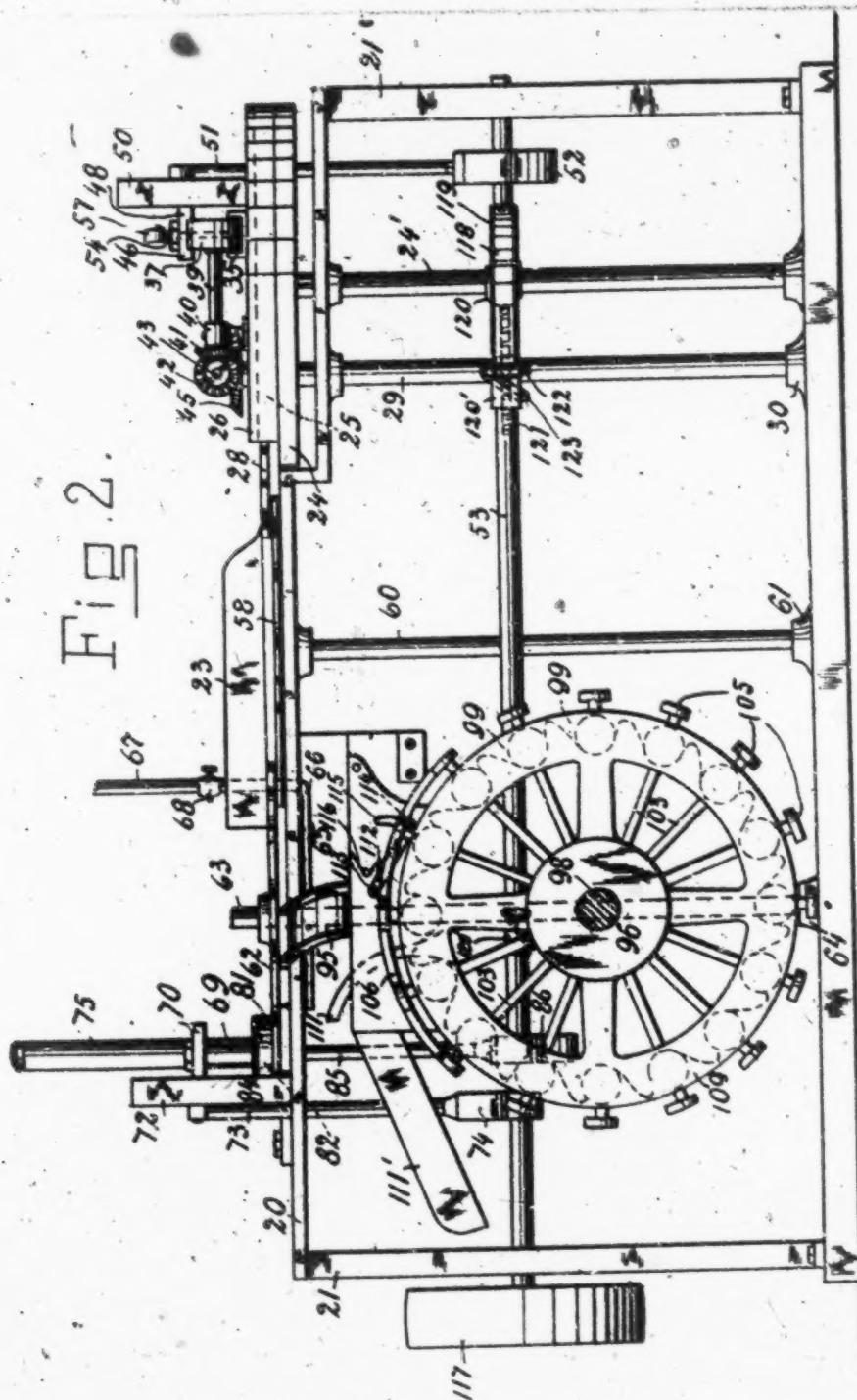
PROCESS OF MANUFACTURING BOTTLE CLOSURES.

APPLICATION FILED SEPT. 9, 1911. RENEWED AUG. 7, 1912.

1,053,898.

Patented Feb. 18, 1913.

4 ЛИСТА-ЛИСТ 2.



WITNESSES

Dr. Link
S. Birnbaum

INVENTOR

Alex Bogdanoff
by Sigmund Herzog
his ATTORNEY

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A. BOGDÁNYFY.

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APPLICATION FILED SEPT. 9, 1911. RENEWED AUG. 7, 1912.

1,053,898.

Patented Feb. 18, 1913.

4 SHEETS-SHEET 3.

Fig. 3.

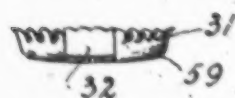


Fig. 4.



Fig. 5.

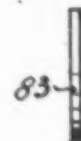


Fig. 6.



Fig. 7.

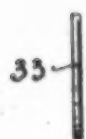


Fig. 8.

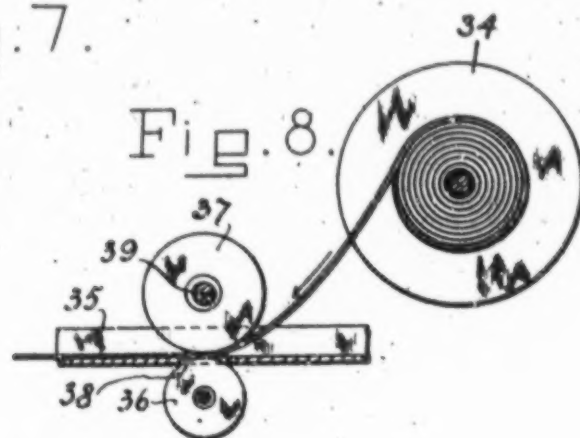


Fig. 9.

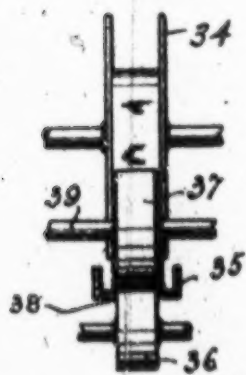


Fig. 10.

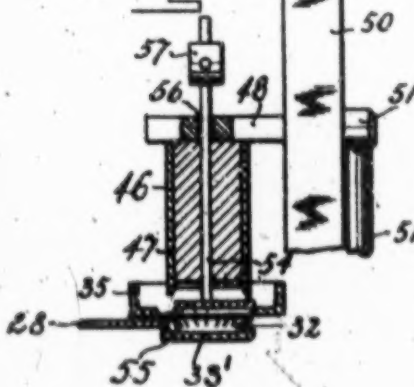
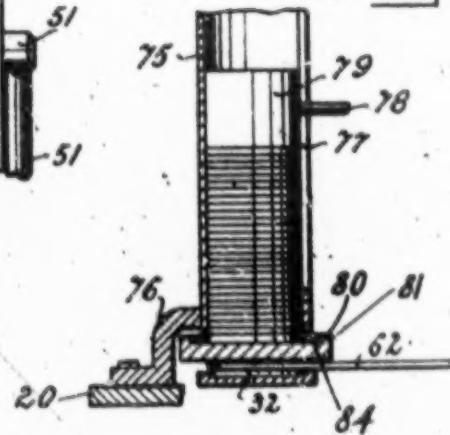


Fig. 11.



WITNESSES

S. Brinkman
D. Klink

INVENTOR

Alex Bogdanffy
BY
Sigmund Herzog
ATTORNEY

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A. BOGDÁNYFY.

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4 SHEETS—SHEET 4.

Fig. 12.

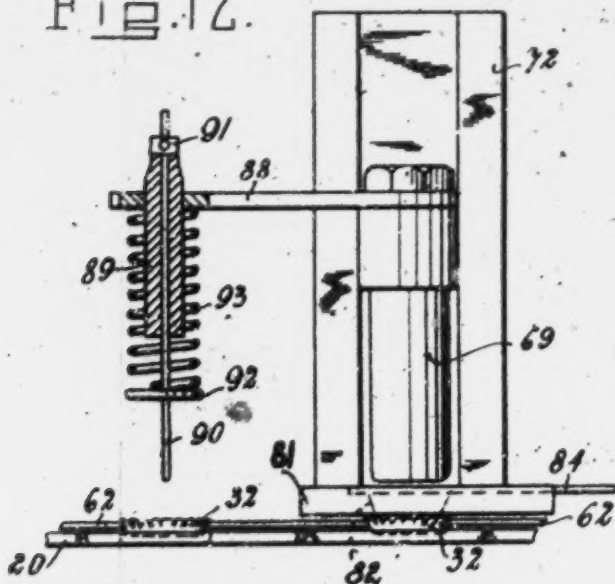


Fig. 13.

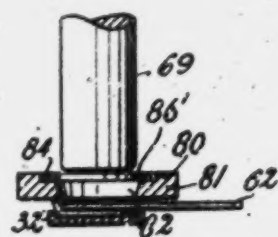


Fig. 14.

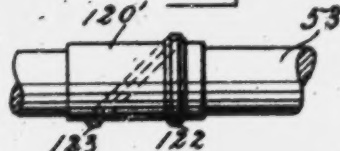


Fig. 15.

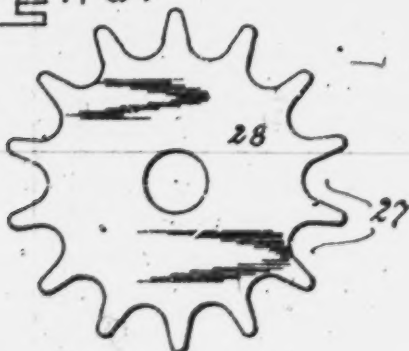


Fig. 16.

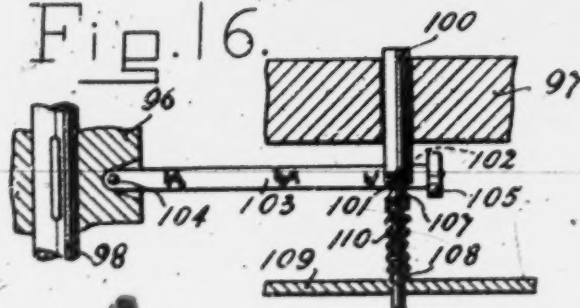
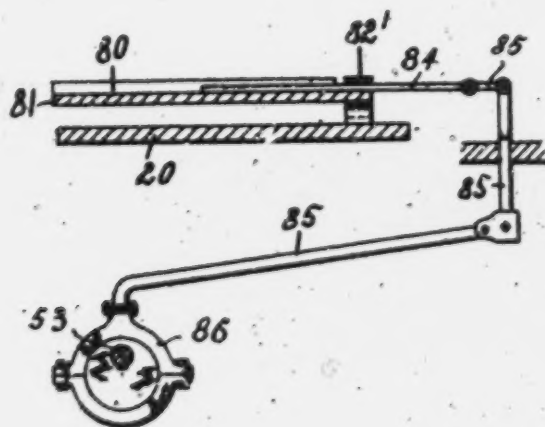


Fig. 17.



WITNESSES

Dr. Klink
S. Bismarck

Alex Bogdanffy INVENTOR

BY Sigmund Herzog
his ATTORNEY

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UNITED STATES PATENT OFFICE.

ALEXANDER BOGDANFFY, OF NEW YORK, N. Y., ASSIGNOR TO INTERNATIONAL CORK COMPANY, OF BROOKLYN, NEW YORK, A CORPORATION OF NEW YORK.

PROCESS OF MANUFACTURING BOTTLE-CLOSURES.

1,053,898.

Specification of Letters Patent.

Patented Feb. 18, 1913.

Original application filed May 27, 1911, Serial No. 699,571. Divided and this application filed September 9, 1911, Serial No. 848,502. Renewed August 7, 1912. Serial No. 713,942.

To all whom it may concern:

Be it known that I, ALEXANDER BOGDANFFY, a subject of the King of Hungary, and resident of the city of New York, in the county of Kings and State of New York, have invented certain new and useful Improvements in Processes of Manufacturing Bottle-Closures, of which the following is a specification, the same being a division of application Serial No. 629,871, filed May 27, 1911.

The present invention relates to a process for the manufacture of bottle closures of the class known as "crown cork sealing caps or closures." Closures of this type comprise usually three parts, that is a metallic cap or crown, having a corrugated flange to be locked to the exterior of the bottle neck, a sealing disk or packing of cork or the like, and a disk of impervious binding material interposed between the metallic cap and the cork disk. These caps have been manufactured heretofore in the following manner: The three parts mentioned are assembled and the closure, as a whole, is then subjected to heating action, whereby the interposed impervious binding material is softened or fused so that, when pressure is applied to the closure, the impervious binding medium will firmly unite the packing disk with the metallic cap or crown. This process of manufacture has, however, several defects, to wit: The packing disks are liable to be injured by the heating action, no matter whether they are of cork or of a composite type. If cork sealing disks are employed, they will lose to some degree their toughness, or in other words they will become brittle, whereby the sealing properties of the same will be impaired to a great degree. If, on the other hand, sealing disks of a composite type are used, they might be rendered entirely useless for the reason that they contain a fusible material, which is, of course, affected by the heat. Another defect of the process of manufacture hereinbefore mentioned consists in that, when the parts are assembled, the diameter of the metallic cap is slightly reduced so as to grip the sealing disk. When now, after the assembling, the closure is heated, the moisture and air between the members of the closure cannot escape. Moreover, when then the

parts are subjected to heating action, the air will be expended and act as a cushion, as it were, when the closure is subjected to pressure, and thus prevent a firm union between the parts thereof. 55

The object of the present invention is to obviate these defects mentioned, and with this and other objects in view, which will appear as the nature of the invention is better understood, the same consists in the process hereinafter fully described, and pointed out in the appended claim. 60

One of the many possible apparatus for carrying out the process forming the subject of the present application for Letters Patent is illustrated in the accompanying drawings, in which:— 65

Figure 1 is a plan view of a device constructed in accordance with the present invention; Fig. 2 is a front elevation thereof; Fig. 3 is a sectional view of a metallic cap inverted or in the position in which it passes to the machine ready to receive the other parts of the composite sealing closure; Fig. 4 is a plan view of the sealing disk of the closure; Fig. 5 is a front elevation thereof; Fig. 6 is a plan view of an impervious binding disk which is inserted into the metallic cap; Fig. 7 is a front elevation thereof; Fig. 8 is a sectional view of the means for feeding the strip of paper from which the binding disks are cut out; Fig. 9 is a front elevation of the device shown in Fig. 8; Fig. 10 is a vertical section taken through the means for cutting the strip of paper; Fig. 11 is a vertical section taken through the sealing disk holding means; Fig. 12 is a side elevation, partly in section, of the means for forcing the sealing disk into the metal cap; Fig. 13 is a sectional view of the means for conveying the sealing disk to the metallic cap; Fig. 14 is a detail view of a worm for intermittently rotating the transporting means of the device; Fig. 15 is a plan view of a transporting wheel; Fig. 16 is a detail of construction of the pressure applying means of the apparatus; and Fig. 17 is a side elevation of a further detail of construction. 70 75 80 85 90 95 100

In the drawings, the numeral 20 indicates a horizontal table, which is supported by legs or standards 21, the latter being attached in any suitable manner to the floor. Above 105

the plane of the table 20 is arranged a substantially horizontal support 23 onto which the metallic caps are placed in their inverted positions, to be passed manually to a continuously rotating carrying disk 24, which conveys the caps, one after the other, along a channel 25 in the direction of the arrow indicated in Fig. 1 of the drawings, which channel is formed between the said carrying disk 24 and a cover plate 26. This cover plate is attached to the table 20 in any suitable manner. The carrying disk 24 feeds the inverted caps or crowns one after the other to the recesses 27 of a star wheel 28, which is attached to a vertical shaft 29, journaled in the table 20 and in a bearing 30. To this shaft intermittent rotary motion is imparted in the direction of the arrow by means which will be hereinafter described. The star wheel 28 overlies partly the carrying disk 24, engages the flange portions 31 of the caps 32, and conveys them along a groove 33' in the table 20 to rest directly beneath the means which cuts the impervious binding disk 33 from a strip of suitably prepared paper or other material, and places the disk into the inverted cap.

The paper strip, from which the disks 33 are cut, is wound upon a reel 34, which is suitably journaled in the frame of the machine, and from which the strip is conducted into a guide 35 to pass between the feeding rollers 36 and 37. The feeding roller 36 is journaled in the frame of the machine and projects through a slot 38 in the guide 35 above the lower plane of the latter, while the spindle 39 of the roller 37 is journaled in a bearing 40, and carries at its outer end a bevel gear 41, meshing with a similar gear 42 upon the shaft 43, upon the opposite end of which is mounted another bevel gear 44 in mesh with a similar gear 45, which latter is attached to the shaft 29 of the star wheel 28. It will be observed that the feeding rollers 36 and 37 will thus rotate intermittently, and advance the paper strip to the cutting means 46. The cutting means comprises a tubular cutter 47, secured in any suitable manner to an arm 48, which is slidably arranged in a vertical guideway 49 of a bracket 50, attached to the table 20. The arm 48 is pivotally engaged by a rod 51, which is fastened to the strap of an eccentric 52, the latter being mounted upon the main driving shaft 53 of the machine. The driving shaft is journaled in bearings, which are secured to or made integral with the standards or legs 21. As the paper disk is cut from the strip, it will be automatically forced, upon the upward movement of the cutter 47, by a stem 54 through a hole 55 in the guide 35 into the metallic cap. The stem 54 projects through an opening 56 of the arm 48 above the plane of said arm and carries upon its upper end a weight 57. When therefore the

cutter 47 moves upward, the weight 57 will force the stem 54 downward and thereby the paper disk into the cap. After this, upon the further upward movement of the arm 48, the latter will engage the weight 57 and lift thus the stem 54 out of the hole 55 in the guide 35. The paper disk having been deposited in the metal cap, the latter will be transported by the wheel 28 within the reach of a star wheel 58, which rotates in a direction opposite to that of the star wheel 28 and lies in a plane below that of the wheel 28, engaging thus the heads 59 of the metal caps 32. The star wheel 58 is mounted upon a shaft 60, which is suitably journaled in the frame and in a bearing 61. The caps and paper disks are by the wheel 58 brought within the reach of a third star wheel 62. This star wheel overlies partly the wheel 58 and engages the metal caps at their flange portions 31, transporting the same intermittently to the means which force the sealing disks into the caps. The star wheel 62 is attached to a shaft 63, mounted in the frame of the machine and in a bearing 64. This shaft moves also intermittently, and is actuated also from the main driving shaft 53 in a manner hereinafter to be specified. While being transported by the wheel 62, the caps and the binding disks therein are heated by a suitable heating means, for instance a gas heater 65. This heater comprises a perforated tubular member 66, connected with the gas supply pipe 67, the communication being controlled by a valve 68. This heater is, preferably, arranged below the table 20. The heat is transmitted to the binding disks by the metal caps directly in contact with the table. The binding material is thus fused or softened for the purpose of uniting the sealing disk to the cap, and for other well known purposes. After heating, the caps are transported by the wheel 62 to an assembling plunger 69, attached to an arm 70, which is slidably arranged in a vertical guide 71 of a bracket 72. The arm 70 is pivotally connected with a rod 73, which is fastened to the strap of an eccentric 74, the latter being keyed to the main driving shaft 53. The sealing disks are placed into a substantially vertical tube 75, which is attached to the table 20 by means of a bracket 76 or otherwise, and is provided with a longitudinal slot 77 through which a finger piece 78 of a weight 79 protrudes, said weight being placed on the sealing disks, and serves to feed the said disks into a guideway 80 of a plate member 81, which is attached to the table by a bracket 82' in a plane above the plane of the star wheel 62. The plate 81 is provided with an aperture 82 in alignment with the plunger 69. This aperture tapers toward the plane of the wheel 62, its upper diameter being larger than the diameter of a sealing disk 83, and the diameter at its

lower end being somewhat smaller than that of a sealing disk. The purpose of this arrangement will be explained presently. The sealing disks are conveyed in the guideway 80 from below the tubular member 75 to the aperture 82 by a reciprocable conveyer 84, which is slidably arranged in the guideway 80, and connected by a plurality of links and rods 85, 85 with the strap of an eccentric 86, which is keyed to the main driving shaft 53 of the machine. The conveyer 84 is provided with a recess 86', which engages the sealing disk in transferring the same to the aperture 82. Obviously the angular relation of the eccentrics 74 and 86 must be such that when the plunger 69 is lifted, the conveyer 84 will move inward and transfer thereby a sealing disk within the reach of the plunger 69, which, in its downward movement, will force the cork disk through the aperture 82 into the metal cap. It should be noted that since the diameter of the lower end of the aperture 82 is smaller than that of the sealing disk, the latter will be compressed to some extent and, when forced into the cap, will expand and be held thus firmly in the cap.

As it happens sometimes that one or the other of the recesses in the star wheel 62 does not contain a metal cap, it becomes necessary to eject the sealing disk from that recess after it has passed the plunger 69. For this purpose the plunger 69 carries a bracket 88, to which a downwardly extending tubular member 89 is attached, in which is slidably arranged a spindle 90, provided upon its upper end with a stop 91 and near to its lower end with a disk 92. Against this disk and the bracket 88 bears a spring 93, tending to force the spindle 90 downward into the recesses of the star wheel 62. The distance between the longitudinal axes of the plunger 69 and the spindle 90 is equal to the distance between two neighboring recesses in the star wheel 62. When therefore the plunger 69 is forced downward to press a sealing disk into the metal cap beneath it, the spindle 90 will be forced into the neighboring recess of the star wheel. If an assembled crown cork is in this recess, the spring 93 will be compressed by the upward movement of the spindle 90. If, however, only a sealing disk is seated in the recess, the spindle 90 will force the same through an opening 94 in the table into a receptacle below said opening, for the reason that the tension of the spring 93 is greater than the resistance offered by the sealing disk in the recess.

The assembled crowns slide down an inclined passage 95 to the uniting head 96. This head comprises a rotary drum 97, keyed to a shaft 98, which is continuously driven from the main driving shaft 53. The drum is provided with a plurality of

peripheral recesses 99, which are adapted to receive, one after the other, assembled crown corks from the passage 95. Plungers 100 are slidably arranged in the drum in alinement with the recesses, said plungers being located parallel with the longitudinal axis of the drum, and provided at their outer forked ends each with a pin 101, which engages slots 102 in radial arms 103, the inner ends of which are pivoted at 104 to the hub of the drum, while their upper free ends carry rollers 105, which are adapted to coast with a cam 106, attached to the frame of the machine. The arms 103 are engaged by the pointed ends 107 of spring pressed pins 108, which are slidably mounted on a ring 109, attached to the shaft 98. The cam 106 is arranged in the path of the rollers 105, whereby, as the drum 97 rotates, the plungers 100 will be forced against the action of the springs 110 upon the pins 108 out of the recesses 99 in the drum before they arrive opposite to the passage 95. When a recess arrives at this point, a crown cork will slide into the same, and after the corresponding roller 105 is disengaged from the cam, the spring 110 will force the plunger against the assembled crown cork, placing thereby the parts of the closure under compression, and holding it in this condition until the closure makes very nearly a full revolution around the shaft 98, when the roller of the plunger again arrives at the cam 106, whereby the plunger is disengaged from the closure, allowing the closure to be guided by a projection 111 into a chute 111'. It is obvious that the binding disk in the closure is still in its fused or softened condition when arriving in a recess of the drum 97, so that this binding medium, due to the pressure, will firmly unite the parts of the closure, the binding medium being partly or wholly hardened when the closure is discharged into the chute 111'. It is to be noted that an intimate union is formed between the sealing disk and the metal cap as there is no air between the said two parts to prevent such union. The sealing disk, on the other hand, is in its original tough condition, as it has not been subjected to the influence of the heating means upon the machine. A tongue 112 is pivoted at 113 to a stationary part of the frame, its free end being provided with a pin 114, engaging an arc-shaped slot 115 in the frame. A spring 116 forces the tongue 112 into contact with the drum, so that closures, which are not properly seated in their recesses, will be forced into the same before the plunger engages them.

Motion is imparted to the entire mechanism through the intermediary of a pulley 117, which is keyed to the main driving shaft 53. The shaft 24' of the continuously

rotating disk 24 is driven by a belt 118, running over pulleys 119 and 120, attached to the shafts 24' and 53, respectively. The shafts 29 and 63 are driven by worms 120', 5 120' upon the main driving shaft 53, engaging worm gears 121, 121 upon the shafts 29 and 63. The worms 120' have straight portions 122, and while these are engaging the worm gears 121, 121, the latter are at 10 rest. When the inclined portions 123 of the worms 120' coast with a tooth of the worm gears, the same will be rotated a given distance, whereby the star wheels will transport the crowns a corresponding distance. 15 The star wheel 58 may be either driven continuously from the shaft 53, or driven by the star wheel 62 through the intermediary of the metal caps engaged by both wheels. The shaft 98 is rotated also from the main 20 shaft 53, the connection between these two

shafts has, however, not been shown, as it would complicate too much the drawing.

What I claim is:—

In a process for the manufacture of bottle closures of the cap variety, which consists, 25 first, in placing a fusible binding medium into the metallic cap, second, heating the metallic cap and binding medium for properly fusing the latter, third, depositing a 30 sealing disk into the cap on top of the fused binding medium, and, fourth, subjecting the assembled closure to pressure while the binding material is hardening.

Signed at New York, in the county of New York and State of New York, this 28th 35 day of July, A. D. 1911.

ALEX. BOGDANFFY.

Witnesses:

SIGMUND HERZOG,
S. BIRNBAUM.

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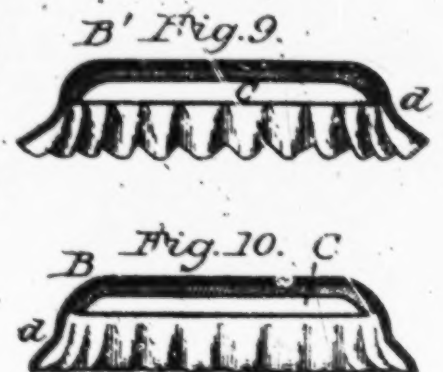
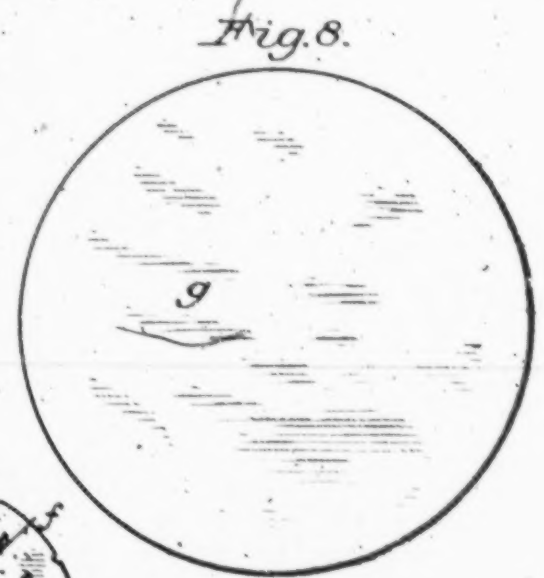
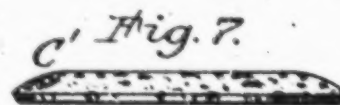
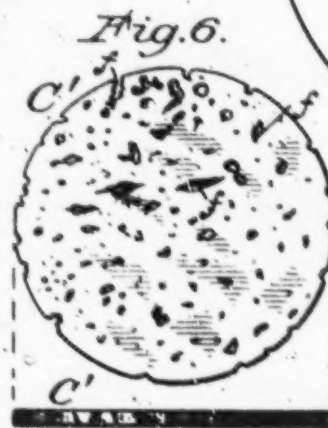
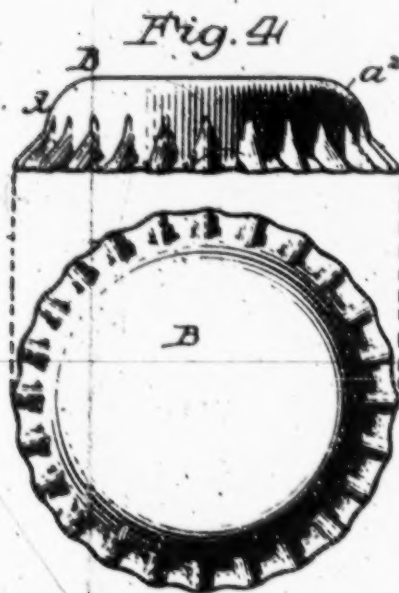
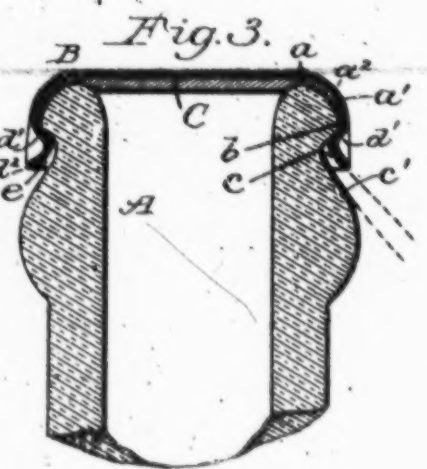
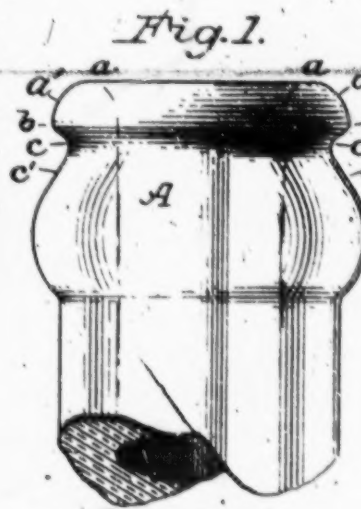
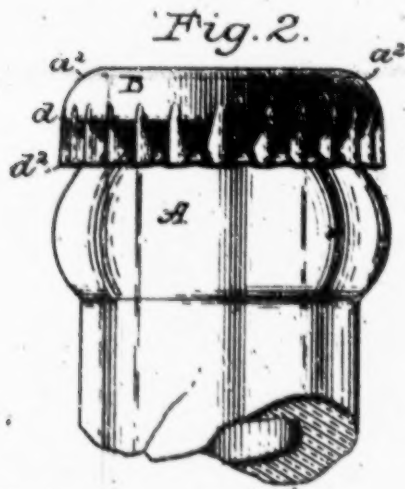
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(No Model.)

W. PAINTER.
BOTTLE SEALING DEVICE.

No. 468,226.

Patented Feb. 2, 1892.



Attest:
Philip F. Lamer.
Notary Public

Inventor:
William Painter.
By *Wm. M. Wood* Attorney.

UNITED STATES PATENT OFFICE.

WILLIAM PAINTER, OF BALTIMORE, MARYLAND.

BOTTLE-SEALING DEVICE.

SPECIFICATION forming part of Letters Patent No. 468,226, dated February 2, 1892.

Application filed May 19, 1891. Serial No. 393,293. (No model.)

To all whom it may concern:

Be it known that I, WILLIAM PAINTER, of the city of Baltimore, in the State of Maryland, have invented certain new and useful Improvements in Bottle-Sealing Devices; and I do hereby declare that the following specification, taken in connection with the drawings furnished and forming a part of the same, is a clear, true, and complete description of the several features of my invention.

My present invention pertains to the sealing of bottles by the use of compressible packing-disks and metallic caps, which have flanges bent into reliable locking engagement with annular locking-shoulders on the heads of bottles, while the packing-disk is in each case under heavy compression and in enveloping contact with the lip of the bottle.

In order that the status of my present improvements may be properly defined with respect of novelty and utility, I deem it proper to briefly review the prior art in this special connection. So far as my knowledge extends, I am the first to seal bottles by means of sealing-disks each compressed into close solid contact with the lip of the bottle and maintained in that condition by means of a flanged metallic sealing-cap, the flange of which is bent or crimped into locking contact (while the disk is under pressure) with an appropriate annular locking-shoulder on the head of the bottle, as well as the first to devise methods and means by which in the use of such caps and disks liquids can be bottled under even the highest gaseous pressures employed in this art. Disclosures of my several prior inventions in this line have been made by me in certain of my applications for patents heretofore filed. (See Serial Nos. 323,314 and 355,603.)

Inasmuch as the application of my sealing-caps involves powerful mechanism for compressing the disks and for bending or crimping the flanges of the caps into locking contact with bottles, it follows that considerable manual force must be applied for detaching the caps from the bottles, and therefore in the early stages of my invention the use of loops of some kind or of equivalent holes in the tops of the caps was deemed essential, and the caps had wide or deep pendent flanges and they contained sealing-disks of consider-

able bulk or thickness. During further progressive stages of my invention I demonstrated the economic importance of using thin disks, and these in some forms preclude the use of a cap having either a hole in its top or even some forms of inserted loops. These contingencies led, after much devising and experimenting, to the production of a cap without a loop or a hole in its top, a thinner disk, and consequently narrower flanges, thus substantially reducing the cost of the sealing device as a whole without decreasing, but in fact increasing, the efficiency of the applied cap, and also securing higher sealing efficiency by the use of a less expensive disk. The flange of the cap being narrow and its locking or bent portions being between the edge of the flange and the top of the cap, and the said edge being practically intact or continuous the cap could be applied to a bottle with a tenacity at least equal to, if not greater than, the caps having wider and consequently more flexible flanges, and hence as much or more manual force was required for detaching said caps than with those of the said previous forms. These improved caps having in themselves no special provision—such as loops or openings in their tops—for detaching them from bottles led to my further devising a novel method of their combination with the bottle, in accordance with which the pendent edge of the flange below the bent portion is so far projected from the adjacent surface of the bottle-head as to afford an engaging-shoulder, to which a bottle-opener could be readily applied; but the required manual force to remove the cap was so great that openers of special form were a necessity, and these were operated by leverage and were fulcrumed either upon the top surface of the cap or upon the outwardly-rounded surface of the bottle-head below the cap. The disadvantages to consumers incident to a positive requirement for the use of specially-constructed openers are obvious, and to avoid them I have now so devised my loopless and close-topped caps and have so organized a combination thereof with the bottles that the caps can be almost as readily detached by the use of a knife, a screw-driver, a nail, an ice-pick, or any usually and readily available pointed instrument as if a special opener were used, the latter be-

ing, of course, always preferable when bottles are required to be opened rapidly. My present caps in their best forms have outwardly-flared edges, and the heads of the bottles below their locking-shoulders are of such form and diametrical dimensions that when the cap is locked upon the bottle there is ample space below and at the rear of the flange to admit of the free insertion of any pointed or thin-edged device capable of serving as a bottle-opener by prying the flange outwardly from the locking-rib at several points and thus releasing its hold thereon. The projected edge of the cap so applied also enables the use therewith of special bottle-openers operating as levers, as with my prior caps. When a special bottle-opener is employed, quite heavy detaching force is necessary, because of the practically simultaneous detachment of the cap from the shoulder on the bottle at many points of locking contact; but in operating within the space at the rear of the pendent edge of the flange, as with a knife-blade, for instance, the detachment is gradually effected at each of the points of locking contact, and hence but little manual force is required.

Now with relation to sealing-disks it is to be understood that at the outset I was well aware that cork was the most desirable material; but in view of the high cost of cork and of the presence therein of holes or pits and the apparent necessity that cork disks should be of considerable thickness prompted the devising by me of various substitutes for cork, some of the best of which have been disclosed in my aforesaid prior applications. Some of said disks were essentially quite thick, and hence I first used therewith a flat-topped cap and a bottle having a sharp-edged lip, which was embedded in the disk. With the thinner disks next used with narrow flanged caps such a deep embedding of the lip as was practicable and desirable with the thick disks was rendered objectionable, and hence I used a flat-topped cap and a bottle having a flat-edged lip. With both the thickest and the thinner disks there was a more or less, but far from extensive, packing contact with the annular surfaces inside and outside of the bottle-lip. I have now provided for a specially extensive area of packing contact by using a bottle having a lip well rounded on its outside and a thin disk capable of enveloping and lying in close conformity with the said outer rounded surface. I am thus enabled to secure very satisfactory results with very thin composite compressible disks and caps of a minimum size and weight, because a large proportion of the area of the disk is interposed between coincident surfaces of the cap and the outer rounded surface of the bottle-lip, and said disk is maintained under very high compression. At this stage of my invention I realized that inasmuch as such very thin disks of the composite types (linoleum, felt-paper, with various protecting-coatings, &c.) could be successfully used it would war-

rant the use of cork, even of the most expensive grades, because said sealing-disks may be normally not thicker than, say, one-sixteenth of an inch. While pursuing this line of experiment I made what may be termed a "paradoxical discovery"—viz., that with the extensive areas of contact and compression now provided by me and with the attendant possibility of using extremely thin disks a perfect gas and liquid sealing effect could be secured and practically maintained for an indefinite time by the use of disks composed of the cheap and ordinary grades of cork, which are well known to contain numerous holes and pits and also streaks of matter quite unlike the main or effective portions of the cork-wood. It is to be understood, however, to accomplish this result that the cork-wood must not only be peculiarly cut, but also subjected to special mechanical treatment. In this connection it will be remembered that in forming ordinary cylindrical or tapered bottle-corks the wood (or bark) is so cut that in each cork the lines of pits or holes are crosswise or at right angles to the axis of the cork, so that when the latter is inserted in the neck of a bottle the contact-surface of the glass closes the entrances to said holes or pits, and therefore their presence does not materially impair the sealing capacity of the cork. Now in cutting my disks from the wood special care is taken to have said lines of perforations or holes or pits parallel with the axis of the disk, and although the disks may be no thicker than one-sixteenth of an inch and be in fact reticulated or perforated they are nevertheless reliable sealing-disks as used by me, because the holes or perforations are so far surrounded by masses of true cork that when the disks are heavily compressed the cork around each hole is rendered impermeable and the ends of each hole are tightly closed, respectively, by the coincident inner surfaces of the rounded topped cap and the outwardly-rounded bottle-lip.

Now as to the necessity for mechanical treatment of the cork disks, I will state that cork-wood (especially the cheaper kind) contains numerous small masses of hard, solid, and almost flinty matter wholly unlike that of the true cork-wood, and it is quite difficult to get a disk which does not contain several of these hard spots. Such hard spots will not become softened by soaking in hot water or steaming, as is usually employed with corks. If such disks be used for sealing, the heavy pressures incident to the application of the caps are insufficient for crushing said hard masses of matter, and their presence would be sometimes indicated by well-developed indentations in the tops of the caps (notwithstanding they are composed of hard sheet metal) with a resultant liability of leakage. For obviating said difficulty I discovered that I must subject the cork disks to a crushing pressure, which so flattens, crushes, or disintegrates said hard masses that they cannot

operate obstructively in the sealing operation. It is to be understood that said disks and the method or process of preparing them will be made the subject of a separate application for Letters Patent. (See Serial No. 417,285, filed January 7, 1892.) It is obvious that in the use of such cork disks the liquid contents of a bottle cannot be excluded by the disks from contact with portions of the cap, and therefore the interior surface of the caps is coated with an inodorous, tasteless, and practically insoluble protecting material.

For more particularly describing my invention I will refer to the accompanying drawings, and after a description thereof the features deemed novel will be specified in the several clauses of claim hereunto annexed.

Referring to the drawings, Figure 1, in side view, illustrates a bottle-head adapted for use in combination with my cap and a sealing-disk. Figs. 2 and 3 respectively illustrate in side view and section a bottle-head with one of my caps and a sealing-disk applied thereto. Fig. 4, in side and top views, illustrates a cap prior to its application to a bottle. Fig. 5, in top and edge views, illustrates a sealing-disk of a composite character in its normal form. Fig. 6, in top and edge views, illustrates a sealing-disk in its normal condition composed of ordinary cork and fairly indicating the open or porous character of such disks as have been successfully used by me with my caps in maintaining gas or air tight closure even under much higher pressures than are ever needed in bottling. Fig. 7 illustrates a cork disk in the form which it is made to assume within the cap and after it has been subjected to heavy pressure for reducing its hard spots. Figs. 8, 9, and 10 respectively illustrate a sheet-metal blank from which the cap is formed, the shape first developed therefrom and the final shape, these being in section with the sealing-disks therein.

Commencing with the bottle-head A, (shown in Fig. 1,) it is to be understood that it differs from such as have been heretofore devised by me in the contour of its lip and of the packing-surface outside of and below said lip above the locking-shoulder, as well as below said shoulder. The lip *a* is well rounded instead of being quite angular, sharp, or flattened, as in different forms of my prior bottles, and the exterior packing-surface *a'* below the lip is also well rounded instead of being, as before, quite straight and inclined. The locking-shoulder *b* is substantially as in some of my prior bottles; but from the recess *c* below the shoulder downwardly, as at *c'*, the surface of the head is straight or inclined for a short distance instead of being quite abruptly rounded outwardly, as in my prior forms. These differences in form are each of importance in the attainment of some of the specific results now sought by me, as will be hereinafter made apparent.

The metal cap B and its disk C or C' will

first be described in connection with those features which specially relate to their combination with a bottle having a locking-shoulder on its head and constructed, as described, below said shoulder, and it is now to be understood that after a bottle has been filled and the cap, with its disk, has been placed thereon heavy pressure is then applied to the cap and disk, and then the flaring edge of the flange *d* of the cap is so bent downwardly and inwardly that an annular portion of said flange, as at *d'*, is forced beneath and into reliable engagement with said locking-shoulder; but instead of the lower inside edge of the flange lying closely against the surface of the glass, as heretofore provided for by me, the said edge, by reason of its being now beveled outwardly and also by reason of the shape and dimensions of the bottle-head adjacent to said edge, stands off from the surface of the glass, so as to thereby afford a free annular space at *e* between the lower portion of the flange and the adjacent surface of the head, and a free entrance to said space is secured for the ready insertion of any sharp or pointed instrument, as indicated in dotted lines in Fig. 3, for service as a bottle-opener by prying the flange of the cap outwardly from the locking-shoulder, as previously described. It will now be seen, although the cap would be well locked and although this bottle-head need be neither unduly large in diameter nor in length, that the flange of the cap may be of a lesser diameter than that of the rounded portion of the head, notwithstanding the liberal annular space *e* at the rear of the flange. As the result of this peculiar and novel combination of the cap and bottle no special bottle-opener is needed, although the edge *d'* of the cap-flange is so well projected that special bottle-openers may be used, if desired. Any form of sealing-cap applied to and in combination with a bottle-head which is recessed below the locking-shoulder and below and at the rear of the flange and which affords the freely-accessible annular space *e* will involve this portion of my invention.

Now, more specifically describing the sealing-cap B, as shown in Fig. 4 and as it appears prior to its application to a bottle, it differs from any of my prior caps in that at the junction of the flange and top it is well rounded, as at *a'*, so that its corresponding inner surface will correspond with or conform to the rounded packing-surface *a'* on the bottle-head, this being an essential feature when thin sealing-disks C or C' are used. As these disks are not or need not normally be more than one-sixteenth of an inch in thickness, and as they are generally reduced to at least one-fourth of that thickness by the requisite sealing compression, it is obvious that the surfaces between which the disk is compressed should be thoroughly coincident, or at least in substantial conformity. With the thick or heavy disks as heretofore used by me and with caps rounded to a minimum

or to any degree at the junction of the flange and top and whether the bottle-lips were flat or sharp, the main point sought was the embedding of the lip in the disk. A comparison of my caps, disks, and bottles and their combination as now disclosed with my prior caps, disks, and bottles and their combination as heretofore devised and disclosed by me, will enable it to be seen that my present improvements involve novel principles of substantial value. With a sharp-lipped bottle and the flat-topped cap a disk as now used by me would be inevitably cut on the line of compression and the sealing effect defeated; but with the outwardly-rounded lip and the extended area of packing contact and the correspondingly-formed cap no cutting action is possible. The thick disks before used and applied by me were essentially impermeable to liquid, and the sealing effect was due, mainly, to the packing contact between the impermeable surface of the disk and the lip of the bottle; but with the thin disks and the rounded coincident surfaces of the bottle-head and the cap permeability of the disk is a matter of no consequence so far as relates to the sealing effect, as will now be made fully apparent.

Referring to Figs. 6 and 7, it is to be understood that the sealing-disk C' is composed of a thin slice of cork-wood of a low ordinary grade and full of pits or irregularly-shaped holes f, which extend completely through the disk, so that when such a disk is held up to the light and close to one's eye it will but little obstruct the vision. In some cases the partitions between the original holes are broken away, forming large ragged holes; but whether the holes are large or small all but those at the extreme edge of the disk are surrounded or bounded by serviceable cork, and hence when the disk is compressed between the surfaces α^2 of the cap and $\alpha \alpha'$ of the bottle-lip some of the small holes will be quite closed in or up by the compression of the adjacent cork, and such as are not so closed are tightly walled on one side by glass and on the other side by metal, and the several portions of integrally communicating cork, although of extremely limited bulk, perform their packing functions more fully than when in larger masses and in the ordinary forms of bottle-corks. It will be seen, however, that, while it is essential in an ordinary bottle-cork that the lines of holes or pits in the cork-wood should be at right angles to the axis of the cork, said holes or lines of holes must be parallel with the axis of a sealing-disk, as before described.

It is obvious that with a thin disk permeable except at its compressed portion it is important that the metal cap should be so coated on its inner side that no metallic taste can be imparted to the liquid contents of a bottle, and for this purpose I apply to the interior of the caps a surfacing of inodorous, tasteless, and insoluble liquid-proof material.

It is to be understood that this resistant or non-corrodible coating need only be a very thin film, and I secure the best results by the use of a fusible adhesive material which is tasteless and odorless—such as thin shellac varnish—applied to the interior of the caps and well dried, although a varnish composed of Egyptian asphaltum and aromatic benzole affords quite satisfactory results.

The combination of a metallic sealing-cap coated inside with a protecting film and a permeable or porous sealing-disk is a valuable portion of my invention, and especially if the sealing-disk be composed of cork.

The very hard spots or masses of various sizes and forms found in all ordinary cork will, as hereinbefore indicated, render thin cork disks more or less defective as compressed sealing-disks whenever such hard matter is located in that annular portion of a disk which is compressed between a cap and the packing-surface of a bottle. I therefore, prior to the application of the disks to bottles, free the disks from said hard spots. In other words, I subject them to a heavy pressure, which breaks or crushes and disintegrates the normally hard masses, so that they cannot operate obstructively during the compression of the disk between the bottle and the cap. This crushing operation may be performed prior to the insertion of the disks into the caps; but it is best accomplished at the time the disk is forced into the cap, the latter having had its interior already coated with a film of well-dried shellac, and then heated sufficiently to melt the shellac and render it adhesive, it being always too insufficient in quantity to cause it to flow and to fill the holes or pits in the cork, as will now be described.

Referring to Figs. 4, 6, 7, 8, 9, and 10, it is to be understood that the cap B is developed from a thin tinned iron disk g, Fig. 8, which is first struck up and formed into the shape shown in B', Fig. 9. The flange d of this cap B' is flared to a greater extent than in the finished cap B, as will be seen upon a comparison of Figs. 9 and 10. A cork disk as received from the cork-cutting machine is placed in the cap B', previously coated inside with shellac and well heated, and then subjected to heavy crushing pressure in suitable dies, and the edge of the flange is compressed, thereby flattening the inner lower portions of the corrugations and slightly reducing the diameter of the flange at and near its edge. Under this operation the hard spots in the cork are not only crushed, but the cork disk is developed into a concavo-convex form, and it is also well confined in the cap by the melted shellac.

The cap B, having the rounded edge at its top, is free from liability of displacement or partial loosening under such edgewise blows on the cap as are incident to handling filled bottles, and said rounding of the top edge also prevents the metal from being lifted at said

edge out of packing contact, even if the center of the cap should be lifted or sprung outwardly under specially powerful gaseous pressure, and therefore it is to be understood that the well-rounded top is an important feature of novelty, but that with respect of its corrugations it is substantially in accordance with my previous disclosures; but in some of my prior caps the edge of the flange was flattened or flared for the sole purpose of causing said edge to lie closely in contact with the surface of a bottle-head rounded outwardly immediately below the locking-shoulder, whereas in my present combination said flattened edge is for an exactly opposite purpose, or, in other words, so as to locate it remotely from the adjacent surface of the bottle-head, which is straight and inclined below the locking-shoulder for a suitable distance, so as to afford the specially useful annular space below and at the rear of the lower portion of the flange. It will also be readily understood that the form and character of the corrugations are immaterial to my present invention, inasmuch as they may be long, short, large, small, straight, or spiralled, because in either case the flanges are to be always bent or crimped into locking contact with the annular shoulder on the bottle-head in such a manner as to afford the annular space *e*, this being wholly independent of the corrugations.

Having thus described my invention, I claim as new and desire to secure by Letters Patent—

1. The combination, with a bottle having a head provided with an annular locking-shoulder adjacent to its lip and a straight or inclined surface below the recess beneath said shoulder, of a metallic sealing-cap containing a sealing-disk and having a flange which is bent or crimped into locking contact with said shoulder above the edge of the flange, the said edge being located remotely from the adjacent surface of the bottle-head to afford between the lower portion of the flange and the

adjacent surface of the bottle-head an annular space which is freely accessible to any pointed instrument applied for detaching the cap, substantially as described.

2. The combination, with a bottle having a head provided with an annular locking-shoulder adjacent to its lip and a straight or inclined surface below the recess beneath said shoulder, of a metallic sealing-cap containing a sealing-disk, and having a flaring-edged flange which is bent or crimped into locking contact with said shoulder above its flared edge, the latter being located remotely from the adjacent surface of the bottle-head to afford between the lower portion of the flange and the adjacent surface of the bottle-head an annular space which is freely accessible to any pointed instrument applied for detaching the cap, substantially as described.

3. The combination, with a bottle having on its head and between its lip and neck an annular locking-shoulder and a rounded packing-surface above and extending to the lip from said shoulder, of a metallic cap containing a thin concavo-convex heavily-compressed sealing-disk and having a top which is rounded in conformity with the packing-surface on the bottle-head and has a flange which is bent or crimped into locking contact with said shoulder, substantially as described.

4. A metallic flanged sealing-cap adapted to receive the head of a bottle and containing a concavo-convex sealing-disk and an interposed film of inodorous and tasteless adhesive matter which not only secures reliable initial union of the cap and disk, but also protects the interior surface of the cap against corrosion by liquids permeating the disk, and also prevents metallic tainting of the contents of a bottle sealed by means of said cap and disk, substantially as described.

WILLIAM PAINTER.

Witnesses:

T. R. ALEXANDER,
ORRIN C. PAINTER.

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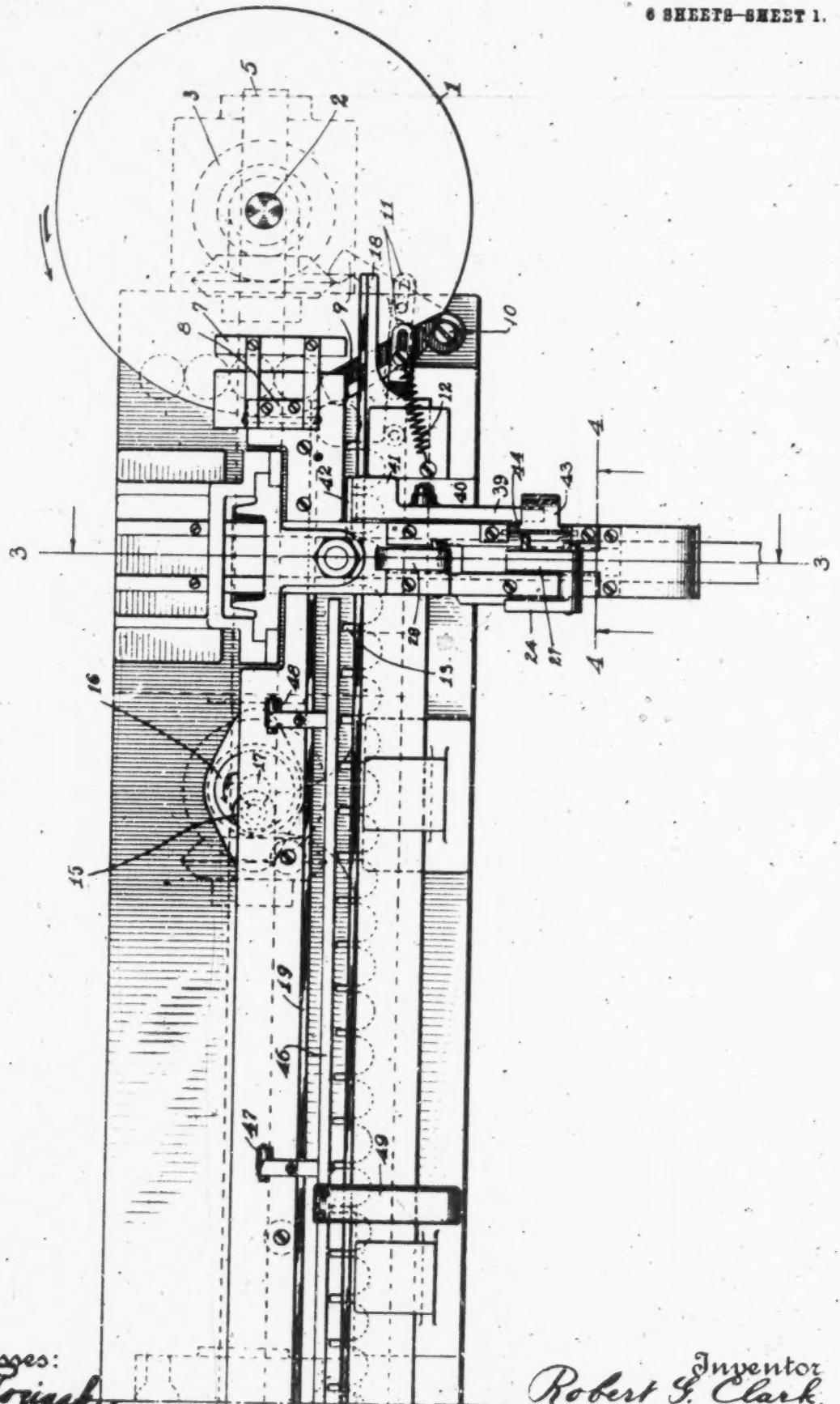
R. G. CLARK.
BOTTLE CAP ASSEMBLING MACHINE.
APPLICATION FILED AUG. 20, 1913.

1,134,031.

Patented Mar. 30, 1915.

6 SHEETS-SHEET 1.

Fig. 1



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A. Rozinsky
W. H. H. H. H.

Inventor
Robert F. Clark
By his Attorney
Lewis J. Coolidge

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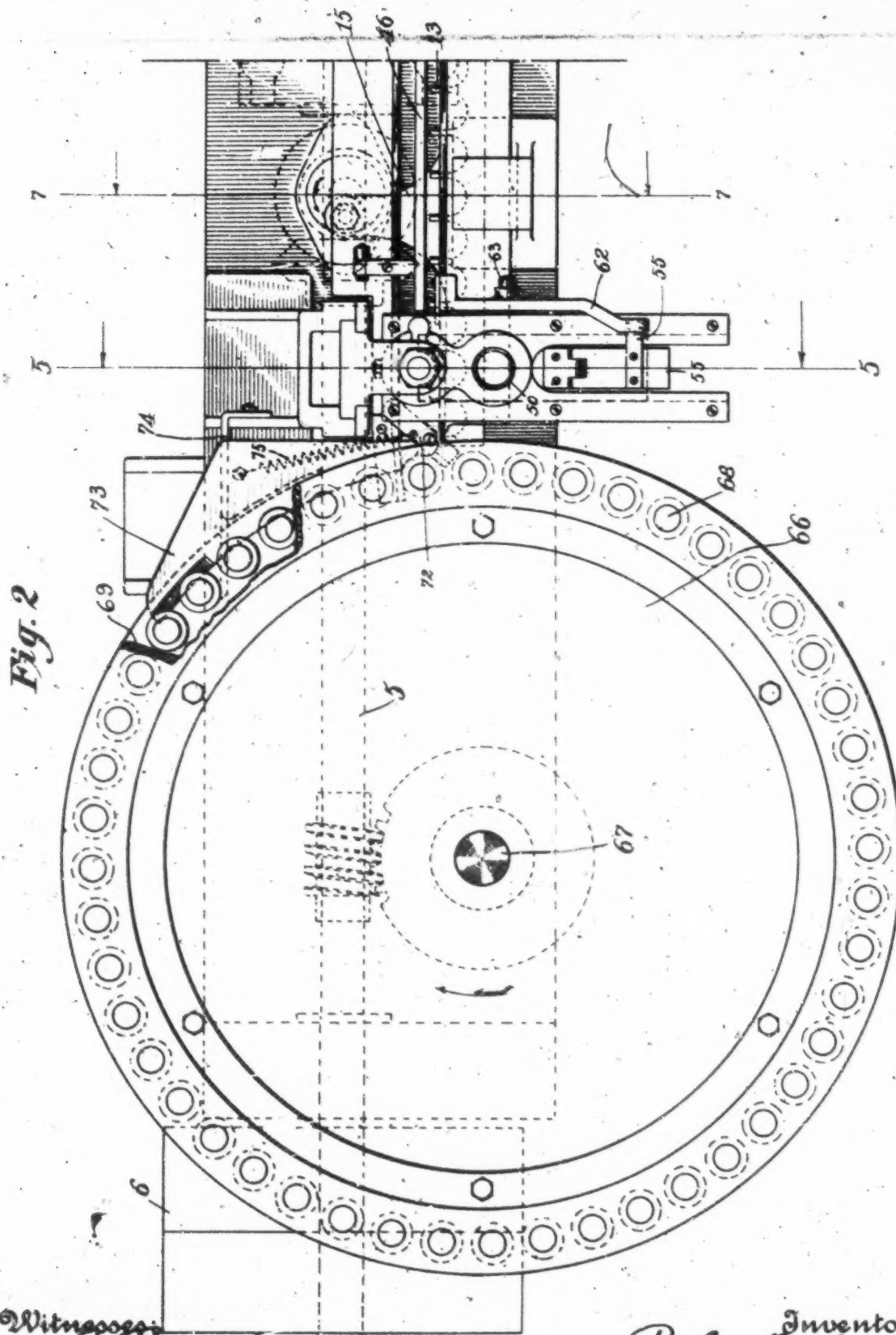
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Patented Mar. 30, 1915.
6 SHEETS-SHEET 2.



Witnesses
W. J. Rozumsky
W. J. Rozumsky

Inventor
Robert S. Clark
By his Attorney
Lewis J. Doolittle

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R. G. CLARK.
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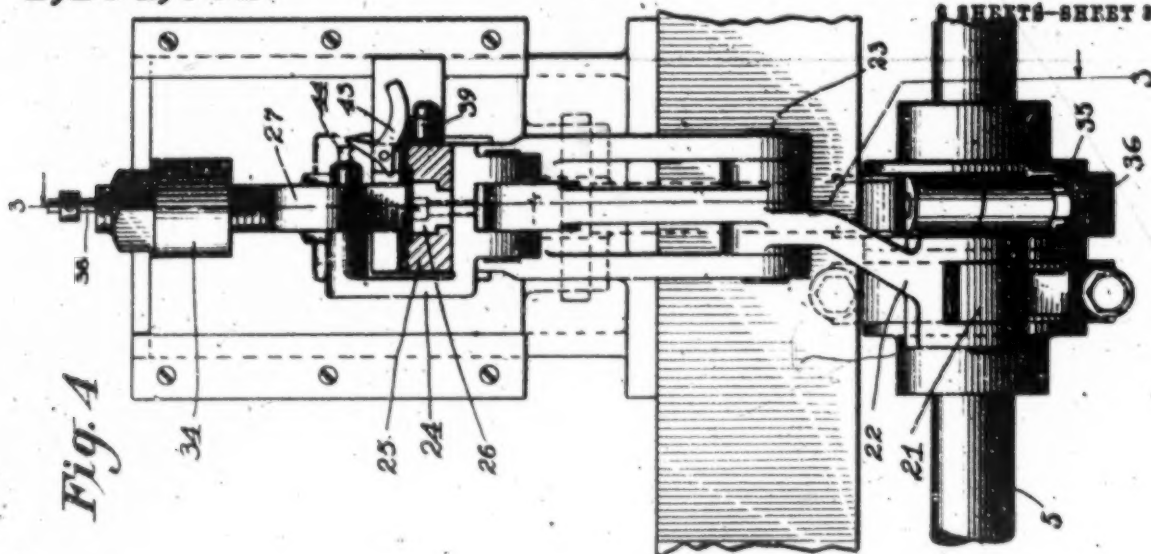


Fig. 4

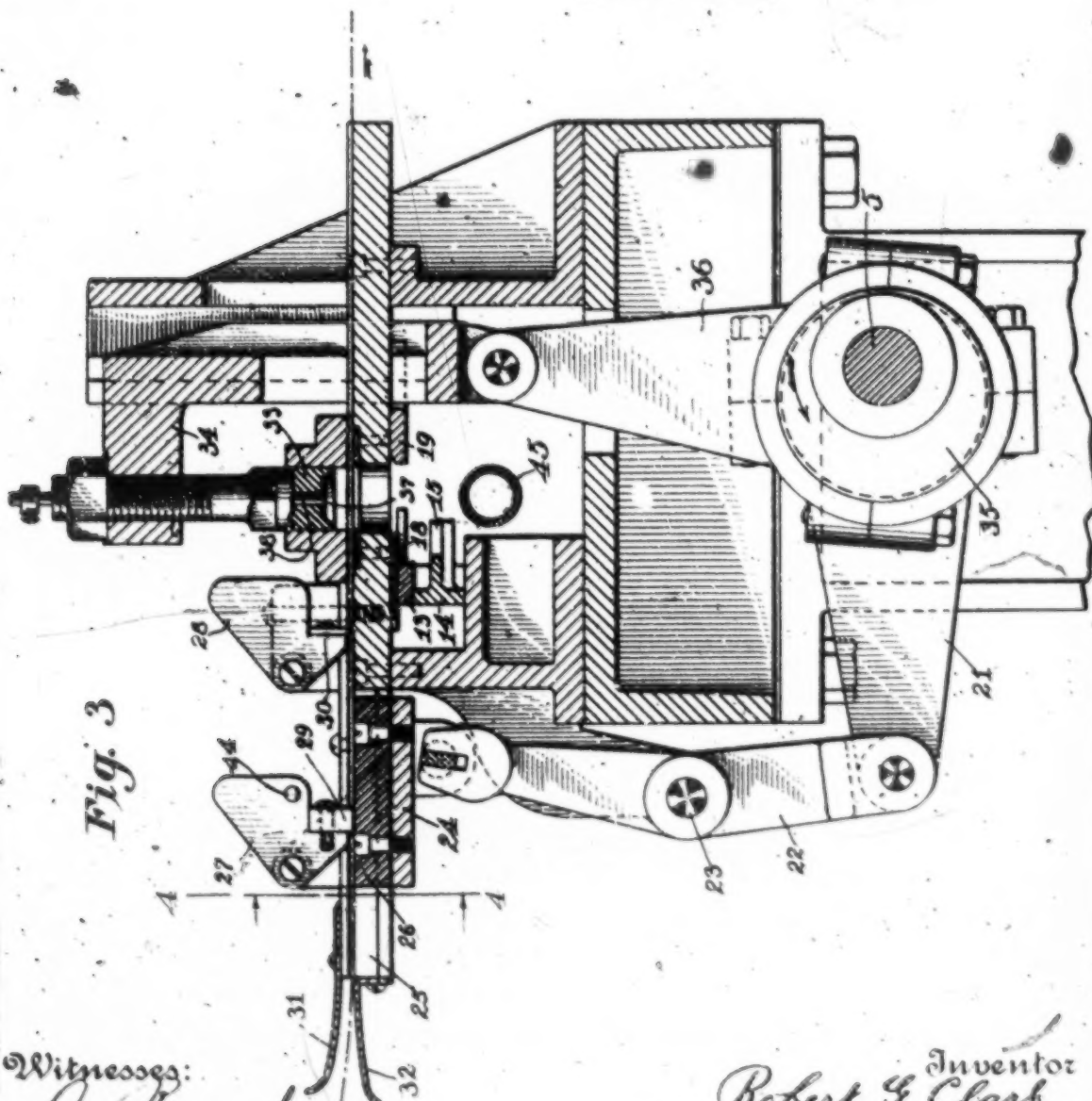


Fig. 3

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J. H. Reynolds
W. H. H. H. H.

Inventor
Robert G. Clark
By his Attorney
Lewis J. Doolittle

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R. G. CLARK.
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8 SHEETS-SHEET 4.

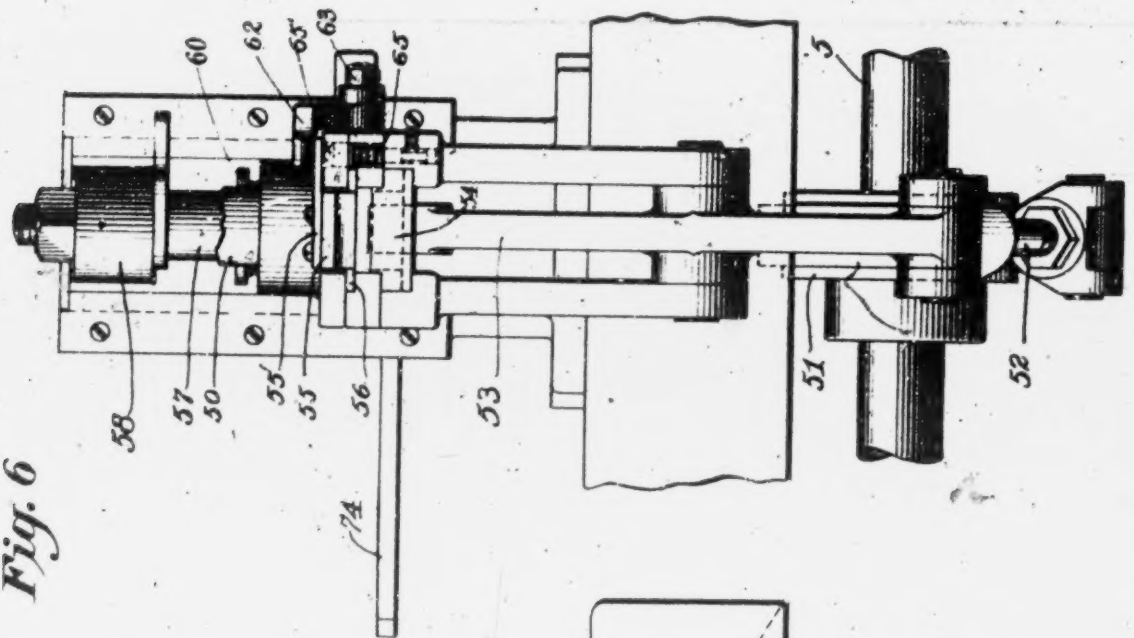


Fig. 6

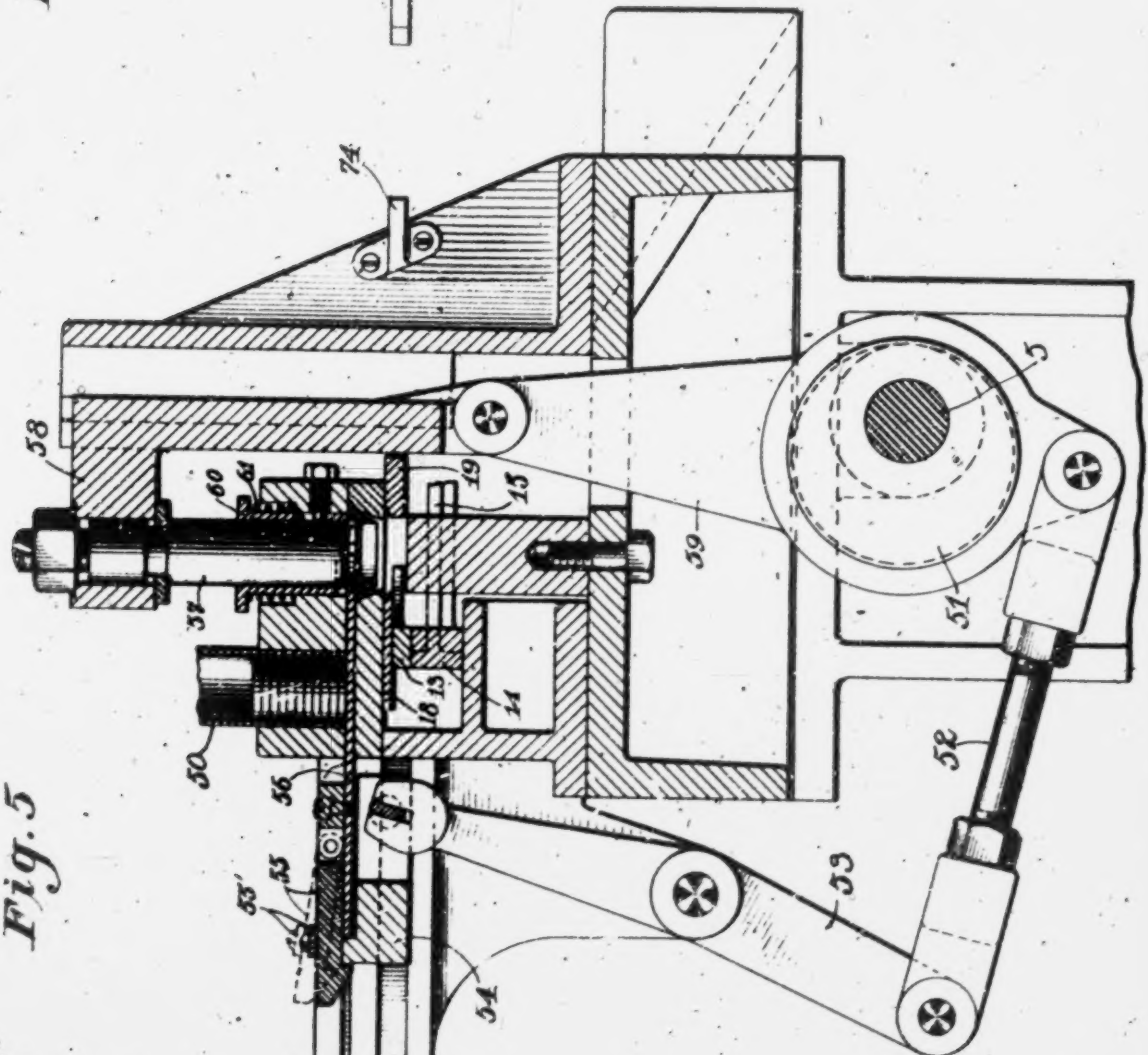


Fig. 5

Witnesses:

W. J. Ryzak
W. J. Ryzak

Inventor
Robert G. Clark.
By his Attorney
Lewis J. Ryzak

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R. G. CLARK.
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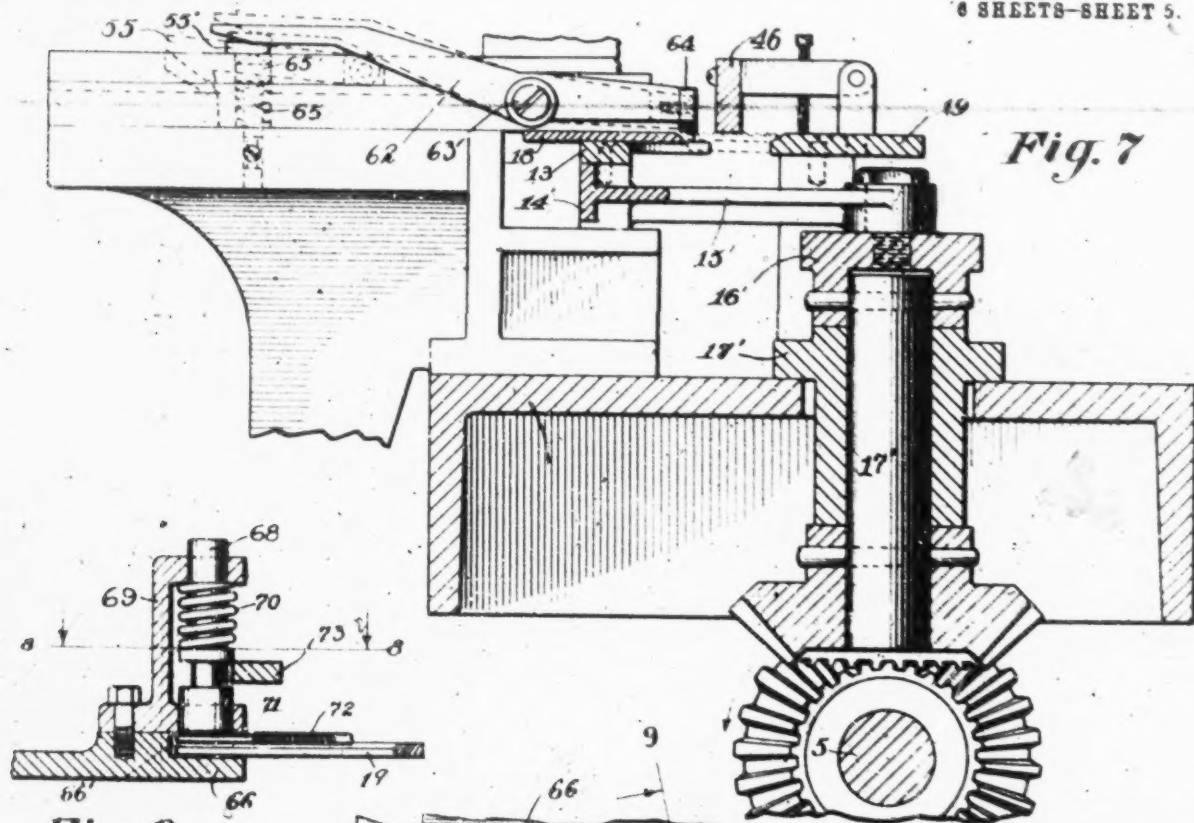


Fig. 7

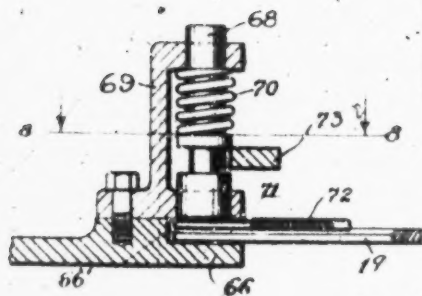


Fig. 9

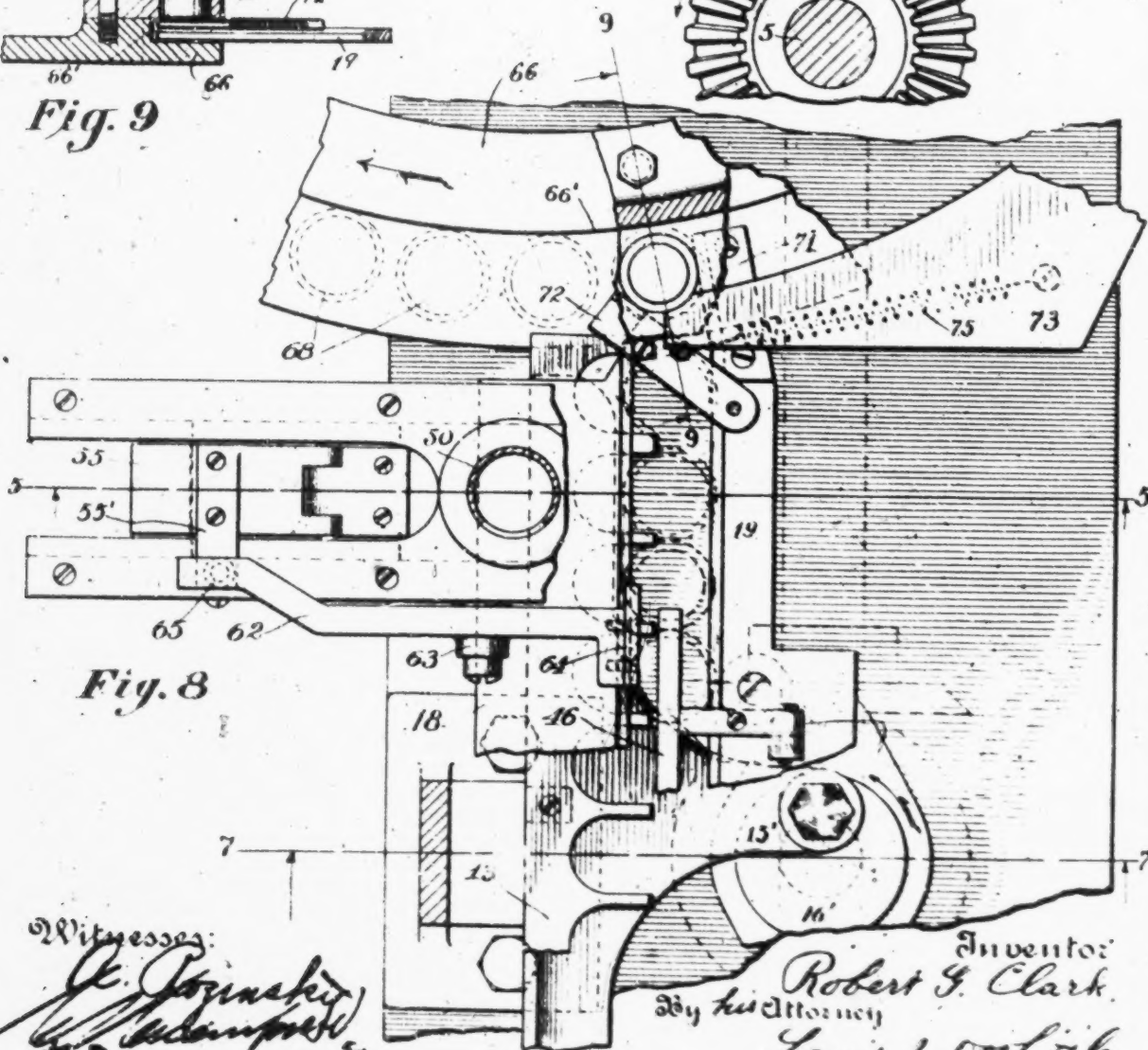


Fig. 8

Witnesses:
W. J. J. J. J.
W. J. J. J. J.

Inventor:
Robert G. Clark
By his Attorney
Lewis J. Loolie

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R. G. CLARK.
BOTTLE CAP ASSEMBLING MACHINE.
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Fig. 10

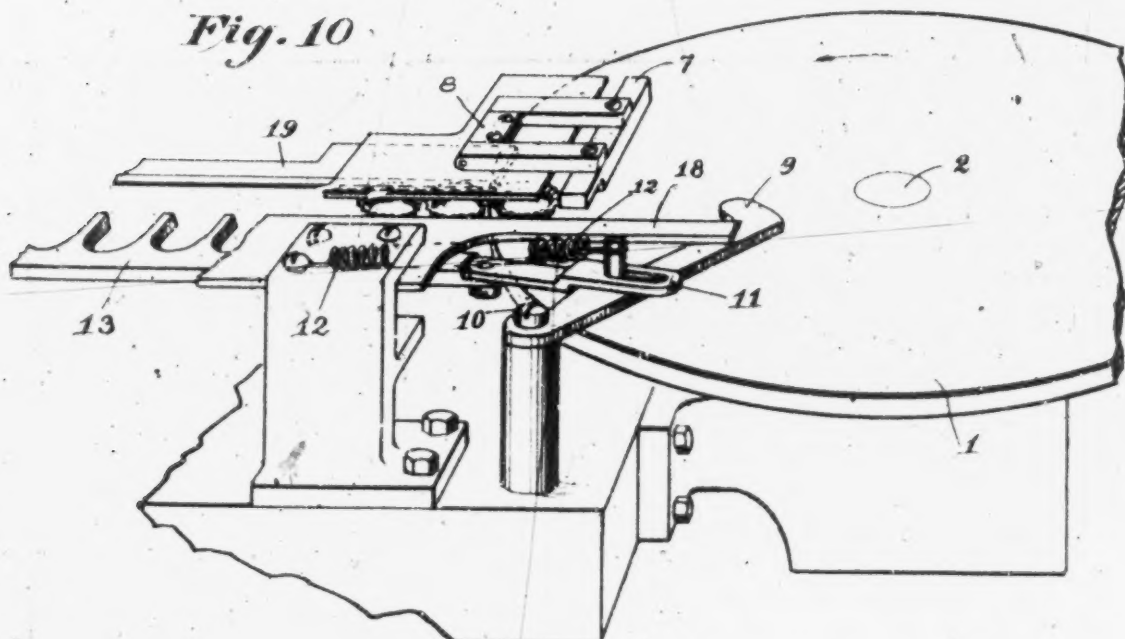


Fig. 11

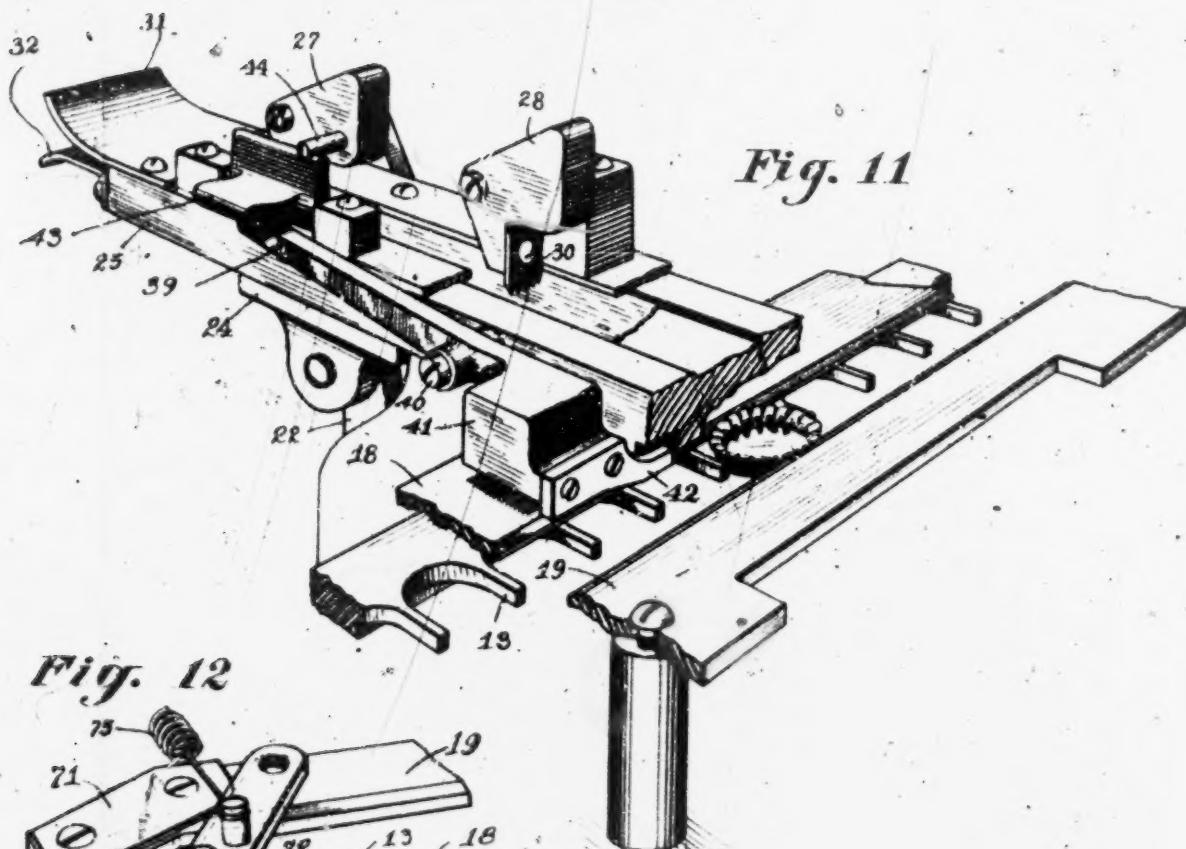
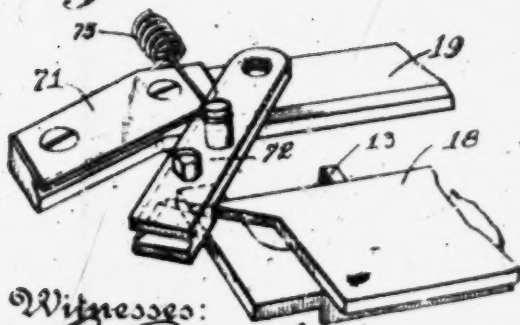


Fig. 12



Witnesses:

R. Rozinsky
W. W. W. W.

Inventor
Robert G. Clark
By his Attorney
Lewis J. Doolittle

UNITED STATES PATENT OFFICE.

ROBERT G. CLARK, OF NEW YORK, N. Y., ASSIGNOR TO JOHN ARON JOHNSON, OF
BROOKLYN, NEW YORK.

BOTTLE-CAP-ASSEMBLING MACHINE.

1,134,031.

Specification of Letters Patent.

Patented Mar. 30, 1915.

Application filed August 30, 1913. Serial No. 783,637.

To all whom it may concern:

Be it known that I, ROBERT G. CLARK, a citizen of the United States, and resident of the city of New York, borough of Brooklyn, county of Kings, and State of New York, has invented certain new and useful Improvements in Bottle-Cap-Assembling Machines, of which the following is a specification.

This invention relates to a machine for assembling bottle caps. These caps consist of a metal cup shaped member having a facing of cork in the form of a flat disk secured to the inner surface of the cap.

The object of the invention is to provide a machine for placing these cork facings in position and securing the same in the cap automatically.

In the machine embodying the invention as illustrated in the accompanying drawings a flat rotary table receives the metal caps from a hopper, the caps being fed to the table by a chute. These caps are formed with a flaring edge which is utilized as a means for supporting the caps while the same are being advanced through the successive operations thereupon. The caps are carried forward by the rotary table into position to be engaged by a shifter finger, by means of which the same are moved upon a pair of parallel supporting rails upon which the caps are supported by their flaring edges.

The feeding mechanism comprises a finger bar of peculiar construction to which is imparted a rotary motion enabling it to engage the caps carried by the supporting rails during a portion of its movement and advance the same successively with an intermittent movement along the supporting rails. This feeding mechanism, while peculiarly adapted for use in this machine, may also be adapted for use in other machines and mechanisms for various purposes where a feeding device is useful.

The next step in the operation of assembling is the placing of an adhesive, such as a gummed disk of paper or other suitable material, in the cap for securing the cork disk in position. For this purpose an automatic mechanism is provided which punches the gummed disks from a strip and positions the same in the caps. Means are also provided for preventing the operation of this mechanism except when the caps are

being fed thereto by the feeding mechanism. The caps are next advanced along the supporting rails by the feeding mechanism over burners or other heating means which melts or softens the adhesive material to the proper consistency to hold the cork facing. The cork facings, usually in the form of flat disks, are fed by a suitable mechanism which operates automatically to place the same in position in the cap. Means are also provided in connection with this mechanism which automatically prevent the operation thereof if no caps are being fed thereto by the feeding mechanism. After the cork facings have been placed in the caps the feeding mechanism delivers the same to a rotating table upon which are mounted a series of punches or pressure plungers which press the cork facings against the adhesive material in the caps and hold the same together while cooling and finally release and deliver the assembled caps.

The above and other features of the invention will be described more fully herein-after in connection with the description of the machine shown in the accompanying drawings as illustrative of one operative embodiment of the same.

In the drawings like parts in the several views have been given the same reference numerals.

Figure 1 is a plan view of one end of the machine. Fig. 2 is a plan view of the opposite end of the same. (Figs. 1 and 2 form one complete plan view of the machine.) Fig. 3 is an enlarged sectional view on the line 3—3 of Figs. 1 and 4. Fig. 4 is an enlarged side elevation, partly in section, on the line 4—4 of Figs. 1 and 3. Fig. 5 is an enlarged sectional view on the line 5—5 of Figs. 2 and 8. Fig. 6 is a side elevation of Fig. 5. Fig. 7 is a sectional view on the line 7—7 of Figs. 2 and 8. Fig. 8 is a plan view of Figs. 5, 6 and 7, partly broken away. Fig. 9 is a detail sectional view on the line 9—9 of Fig. 8. Fig. 10 is a perspective view of the right hand end of Fig. 1. Fig. 11 is a perspective view of a portion of Fig. 3. Fig. 12 is a perspective view of a portion of Figs. 2 and 8.

A flat rotary table 1 is rotated in the direction indicated by the arrow in Figs. 1 and 10 by the vertical shaft 2 driven by the bevel gears 3 and 4 from the main driving shaft 5. This shaft is driven by means

of suitable pulleys, such as 6, shown in Fig. 2. The caps are fed to the table 1 from a chute, not shown, the caps being indicated by the dotted circles in Fig. 1 and are carried between the horizontal guides 7 and 8 by the movement of the table 1.

The shifter finger 9 is pivoted at 10 and is oscillated by a link 11 acting in conjunction with a spring 12 and successively engages the caps, pushing the same to the left into position to be engaged by the finger bar 13.

The finger bar 13 consists of a long flat bar slidably mounted and provided with a series of projections on one side spaced to receive the caps, allowing a slight clearance. This finger bar 13 is mounted upon a support 14, shown more clearly in Figs. 7 and 8, which is provided with two extensions 15 and 15' connected to the crank members 16 and 16' mounted upon the vertical shafts 17 and 17', respectively. These shafts are driven by bevel gears from the main shaft 5, as shown. It will thus be seen that a rotary reciprocating movement is imparted to the finger bar 13 which causes the projections thereon to successively engage and advance the caps with an intermittent movement, the throw of the crank members 16 and 16' being substantially equal to the diameter of the cap. As the caps are thus advanced the same are received upon and suspended from a pair of parallel supporting rails 18 and 19, which have their upper inner edges beveled to carry the caps suspended from their flaring edges so that the finger bar engages the body of the cap.

The mechanism for placing the adhesive material in the caps is shown in Figs. 3, 4 and partly in Fig. 11. An eccentric 20 is operated from the shaft 5. The eccentric arm 21 is connected to oscillate a lever 22, which is pivotally mounted at 23. The upper end of the lever 22 operates a slide 24 which is slidably mounted in the cross support 25 by the T shaped member 26. The slide 24 is provided with a projection extending upwardly and over the cross support 25 carrying a weighted pawl 27. A similar pawl 28 is pivotally mounted upon the frame of the machine. The pawl 27 carries a flexible member 29, preferably of rubber, at its lower end and the pawl 28 carries an engaging member 30 similarly located. A strip of gummed paper is fed from a roll, not shown, between the guides 31 and 32 over the cross support 25 and under the portions 29 and 30 of the pawls 27 and 28. The slide 24, carrying the pawl 27 is oscillated and moves the strip of gummed paper along the cross support 25, the strip being held against the return movement by the pawl 28 and its engaging portion 30. It will be seen that a wedging action is produced on the forward movement between the flexible

member 29 on the pawl 27 and the paper strip, holding the paper against the member 26 of the slide 24 and a like action is produced by the pawl 28 against the paper upon the return movement, thus causing the paper strip to be advanced by the forward movement and held against the return movement.

A punch 33 is mounted in a vertically sliding carrier 34 and operated by the eccentric 35 on the shaft 5 through the eccentric arm 36. The punch is positioned over the cross support 25 and the strip of gummed paper, from which disks are punched and dropped into the caps as the same are advanced successively thereunder, carried by the supporting rails 18 and 19. In the recess in the bottom of the punch 33 is positioned a small disk 37 mounted upon a stem 38, which extends through a longitudinal opening in the punch and is provided with an adjustable stop at its upper end. The purpose of this is to cause the disk of gummed paper when cut from the strip to fall into the cap beneath, which might otherwise stick to the punch, the weight of the disk 37 and stem 38 being sufficient to push the disk out.

In case no caps are being fed by the finger bar 13 it is desirable to prevent the paper feeding mechanism from operating and for this purpose a weighted lever 39 is pivoted to the frame at 40. This lever is provided at one end with a weight 41 carrying a contact piece 42, which is positioned over the path of the caps and holds the lever 39 up, or in its inoperative position while any caps pass under the same. (See Figs. 1 and 11.) When there are no caps being fed the weighted end of the lever 39 falls and the opposite end is raised and engages a pivoted latch 43, (see Figs. 4 and 11,) swinging the upper end of the same inwardly into the path of a pin 44 on the pawl 27, holding the same out of engagement with the gummed strip of paper and preventing the feeding until released by the raising of the inner end of the lever 39 by the caps again passing under the same. It will thus be seen that the operation of this mechanism is controlled automatically by the presence or absence of the caps which are to receive the adhesive material supplied thereby.

After the adhesive material is placed in the caps, as just described, the same are advanced along the supporting rails 18 and 19 by the finger bar 13 over the flames from a number of gas jets supplied from a perforated pipe 45, shown in Fig. 3, or other suitable heating means. This melts or softens the adhesive material preparatory to receiving the cork facings. During this portion of their travel the caps are held against displacement on the supporting rails 18 and 19 by means of a bar 46, shown in Fig. 1, which

is positioned over the path of the caps and rests lightly thereon and is hinged at one side, as at 47 and 48, to the frame and provided with a weighted handle 49 extending on the opposite side. This construction permits the bar 46 to be raised to provide access to the caps for removing any that may become displaced, etc.

The mechanism for placing the cork facings in the caps is shown in Figs. 5 to 8 inclusive. These facings are in the form of disks of cork cut to size and placed in a vertical tube 50. An eccentric 51 on the shaft 5 is connected by the pitman rod 52 to a pivoted lever 53, which, in turn, is operatively connected to and oscillates a slide 54. On the forward movement a shoulder on the slide 54 engages a cork shifter slide 56, which is provided with a semi-circular recess at one end for engaging the lowermost of the cork disks in the tube 50 and moving the same forward beneath the plunger 57 over one of the caps advanced by the finger bar 13 upon the rails 18-19. On the return movement of the slide 54 the rear end engages a latch 55, which is pivotally attached to the cork shifter slide 56.

The plunger 57 is carried in a sliding head 58 mounted on the frame and operated by an eccentric arm 59 from the eccentric 51. The plunger 57 carries a sleeve 60 which has a tapered lower end and is slidably mounted upon the plunger and supported by a spring 61. The purpose of this sleeve is to locate or center the cap beneath the plunger so that the cork facing will be properly placed or positioned therein. Means are provided for preventing the operation of this mechanism and stopping the feeding of the cork facings when there are no caps being fed beneath the plunger. These means are shown in Figs. 7 and 8 and consist of a lever 62 pivotally mounted upon the frame of the machine at 63 and provided at one end with a foot piece 64 which rests upon the caps as the same are advanced thereunder. The lever 62 is thus normally held in inoperative position and permits the cork feeding mechanism to operate as just described. Should no caps be present, however, the inner end 64 of the lever 62 being unsupported allows the outer end to be raised by the action of the spring 65 and its plunger 65' positioned beneath the outer end of the lever 62. A projection 55' from the latch 55 passes between the end of the lever 62 and the plunger 65' and the latch 55 is thereby raised out of engagement with the slide 54, consequently, the cork shifter slide 56 is not returned with the return movement of the slide 54 and the feeding of the corks is thus automatically prevented as long as no caps are being advanced by the finger bar.

The caps are now delivered to a rotating table 66, which is revolved by the vertical shaft 67 driven by a worm and gear from the main shaft 5, as shown in Fig. 2. Upon the table 66 a number of pressure plungers 68 are mounted, these being indicated in Figs. 2 and 8 and shown in detail in Fig. 9. The plungers 68 are slidably mounted in a bracket 69 attached to the table 66. A spring 70 normally holds the plunger 68 against the cork facing in the cap and presses the same together while cooling, this taking place during one revolution of the table 66.

The end of the supporting rail 19 is bent to extend angularly over the revolving table 66 and a flat cap 71 is secured on top of this angular portion extending over the beveled edge for holding the flaring edge of the caps as the same are fed upon the table by the movement of the finger bar 13. (See Figs. 8 and 12.) A swinging finger 72 is pivotally mounted upon the rail 19 and extends over the table 66. The end of this finger 72 is swung out of the path of the caps successively by engagement with the plungers 68 and as the plunger ahead of the one about to receive the cap passes out of engagement with the finger the finger 72 the same snaps back, by the action of the spring 75, against the cap, which has just been advanced upon the table 66 by the finger bar 13, and positions the cap against the shoulder 66' on the table 66 and the rail 19, with its flaring edge under the cap 71, and holds the cap until the following plunger 68, which passes off from the cam 73, engages the same. The cam 73 is stationary and positioned in the path of the plungers 68, the outer end being inclined engages in a slot in the plungers 68, as shown in Figs. 2 and 9, and raises the same successively from the caps, which are thus released and removed from the table by the further movement of the same under the ejector finger 74, which is mounted on the frame of the machine and extends over the table 66 in the path of the caps when released by the plunger 68, as just described.

As many changes could be made in the above construction and many apparently widely different embodiments of my invention designed without departing from the scope thereof I intend that all the matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative merely of an operative embodiment of my invention and not in a limiting sense.

What I claim is:—

1. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, a pair of parallel supporting rails upon which the caps are suspended from their flaring edges, means for shifting

the caps successively to the supporting means, a hinged bar positioned over the path of the caps upon said rails and resting lightly thereupon to prevent their displacement, means for advancing the caps successively upon said supporting rails during the operation of assembling, means for placing an adhesive in said caps, means adapted to automatically control the operation of said adhesive placing means, means for heating the cap and adhesive therein, means for placing cork facings in said caps, means adapted to automatically control the operation of said cork placing means, means for pressing the cork facings and caps together against the adhesive, and means for delivering the assembled caps from the machine.

2. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, means for shifting the caps successively to a supporting means upon which the caps are supported and guided in a straight path, means for advancing the caps successively upon said supporting means during the operation of assembling, a pawl carried by an oscillating slide adapted to feed a strip of adhesive paper to a punch, a punch positioned over the path of the caps adapted to punch disks from the strip of adhesive paper and place the same successively in the caps, a lever having one end weighted and positioned over the path of the caps and held thereby in its inoperative position and having its opposite end arranged and adapted to hold said feeding pawl in an inoperative position when no caps are being fed, means for heating the cap and adhesive therein, means for placing cork facings in said caps, means for pressing the cork facings and caps together against the adhesive, and means for delivering the assembled caps from the machine.

3. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, means for shifting the caps successively to a supporting means upon which the caps are supported and guided in a straight path, means for advancing the caps successively upon said supporting means during the operation of assembling, means for placing an adhesive in said caps, means for heating the cap and adhesive therein, a cork shifter slide for feeding the cork facings to the caps, a latch pivotally attached to said cork shifter slide and normally engaging an oscillating slide, a lever having one end positioned over the path of the caps and held thereby in its inoperative position and having its opposite end arranged and adapted to automatically control the position of said latch and the movement of said cork shifter slide, means for pressing the cork facings and caps together against the adhesive, and means for delivering the assembled caps from the machine.

4. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, means for shifting the caps successively to a supporting means upon which the caps are supported and guided in a straight path, means for advancing the caps successively upon said supporting means during the operation of assembling, means for placing an adhesive in said caps, means for heating the cap and adhesive therein, means for placing cork facings in said caps, a revolving table upon which the caps are received, a series of pressure plungers mounted on said table adapted to press the cork facings and caps together against the adhesive, means actuated successively by said plunger for positioning and holding the cap in position to be engaged by the following plunger, and means for delivering the assembled caps from the machine.

5. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, means for shifting the caps successively to a supporting means upon which the caps are supported and guided in a straight path, means for advancing the caps successively upon said supporting means during the operation of assembling, means for placing an adhesive in said caps, means for heating the cap and adhesive therein, means for placing cork facings in said caps, a revolving table upon which the caps are received, a series of pressure plungers mounted on said table adapted to press the cork facings and caps together against the adhesive, a spring actuated finger extending over said table in the path of the caps and successively engaged by said plungers to move the same out of the path while each cap is being fed to the table and adapted when released to position and hold the cap in position to be engaged by the following plunger, and means for delivering the assembled caps from the machine.

6. In combination, means for feeding the caps, means for placing an adhesive in said caps, means for placing cork facings in said caps, a revolving table upon which the caps are received, a series of pressure plungers mounted on said table adapted to press the cork facings and caps together against the adhesive, a finger extending over the table into the path of the caps and successively engaged by said plunger to move the same out of the path while each cap is being fed to the table, and adapted when released to position and hold the cap in position to be engaged by the following plunger and means for delivering the assembled caps from the machine.

7. In a machine for assembling bottle caps and the like, in combination, means for receiving the caps, a pair of parallel supporting rails upon which the caps are suspended from their flaring edges, means for shifting

the caps successively to the supporting means, a hinged bar positioned over the path of the caps upon said rails and resting lightly thereupon to prevent their displacement, and means for advancing the caps successively upon said supporting rails during the operation of assembling.

8. In a machine for assembling bottle caps and the like, in combination, a rotary table, means for feeding the caps to said table, a pair of guides extending over said table, a pair of supporting rails upon which the caps are adapted to be received from said table, a reciprocating finger bar arranged under said supporting rails, and adapted to shift said caps successively along said rail, an oscillating shifter finger extending over said table and adapted to successively engage the caps and shift them to the supporting means, said shifter finger being actuated by the motion of said finger bar.

9. In a machine for assembling bottle caps and the like, in combination, means for successively feeding the caps means for placing an adhesive in said caps, means for heating the caps and adhesive therein, means for placing cork facings in said caps, a revolving table upon which said caps are received, a series of plungers mounted upon said table adapted to press the facings and caps together upon the adhesive, means successively operated by said plungers for positioning and holding the caps for engagement by the following plunger and means for delivering the finished cap from the machine.

10. In a bottle cap assembling machine, and the like, in combination, means for feeding the caps, means for placing an adhesive in said caps, means for heating the cap and adhesive, means for placing a cork facing in said caps, a rotary table upon which the caps are received, a series of pressure plungers on said table, an annular shoulder formed on said table, a stationary member extending over said table, a spring actuated finger extending over the said table in the path of the caps, and successively engaged by said plungers to move the same out of the path while each cap is fed to the table and adapted when released to force said cap against said annular shoulder and said sta-

tionary member for engagement by the following plunger and means for delivering the assembling caps from the machine.

11. In a machine for assembling bottle caps and the like, in combination, a supporting means, means for advancing the caps intermittently upon said supporting means during the operation of assembling, means for intermittently feeding a strip of adhesive paper over the caps during the period of advancement of said caps, a punch positioned over the path of the caps adapted to punch disks therefrom and place the same successively in the caps during the period of rest, and means controlled automatically by the caps to control the operation of said strip feeding means.

12. In a machine for assembling bottle caps and the like, in combination, means for delivering the caps, a rotary table upon which the caps are received, a pair of parallel supporting rails, a reciprocating finger bar adapted to engage and advance the caps successively during the operation of assembling, means for successively shifting said caps to said supporting rails comprising a pair of horizontal guides extending from said table and between which the caps are carried by the rotation of said table and an oscillating shifter finger operated by the reciprocation of said finger bar adapted to successively engage the caps and place the same in position to be engaged by the finger bar.

13. In a machine for the manufacture of bottle closures of the cap variety, the combination with transporting means for a metallic cap, of means for cutting a disk from a strip of binding material and inserting it into the cap, means for feeding the strip to said cutting means, and means for rendering said feeding means inoperative if said transporting means fails to bring a cap into registering position with said inserting means.

Signed at the city of New York, in the county and State of New York, this 18th day of Aug., 1913.

ROBERT G. CLARK.

Witnesses:

GEORGE NORDENHOES,
LEWIS J. DOOLITTLE.

BLANK

PAGE

1519
1763

DEFENDANT'S EXHIBIT N N N

CABLE ADDRESS "HANTUS" NEW YORK
TELEPHONE CONNECTION

United States District Court
Eastern District of New York
Exhibit N N N in evidence

Date Nov 1931

per Clerk
Deputy Clerk

Sold to

FERDINAND GUTMANN & Co.



M.K. Coats Brewing Co.

St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. August 14, 1928

SHIPPED TO

VIA Express prepaid

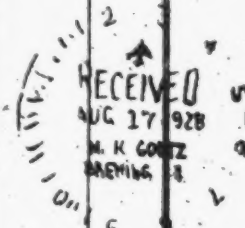
100

Gross special decorated crowns Gr. 34
2 colors-blue black and gold
Inside gold lacquered
XX quality natural cork discs faced
with aluminum center of medium 3 1/2
diameter, cork discs, paper backed.
Case #1

P.O. B. Brooklyn, N.Y.

34

34



ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1519

1520

1764

DEFENDANT'S EXHIBIT 000

67371
United States District Court
Eastern District of New York
Exhibit 000 in evidence
Date *mm-8-31*

CREDIT MEMORANDUM.

TO *(C)* Deputy Clerk Clerk Brooklyn, NEW YORK. Oct. 2, 1928.
M. K. Goetz Brewing Co.,

St. Joseph, Mo.
FROM FERDINAND GUTMANN & CO.

Bush Terminal Bldg. #19,
Brooklyn, N.Y.

~~CONFIDENTIAL~~

WE CREDIT YOUR ACCOUNT AS FOLLOWS:

Entire invoice August 14, 1928.

100 gross special decorated groggs

\$34.00

*Letter to Mr. Kelly
10/11/28
attest to transfer
V#2205*

1521

1765

DEFENDANT'S EXHIBIT P P P

CABLE ADDRESS "HANTY" NEW YORK
TELEPHONE CONNECTION

United States District Court
Eastern District of New York
Exhibit PPP in evidence

Date *Aug 1 31*

Clerk

Deputy Clerk

Sold to



M.K. Goetz Brewing Co.

St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange.
Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. August 23, 1928.

SHIPPED TO

VIA Express prepaid

100	Gr. special decorated crowns Gr. 34 Design: Goetz County Club 2 colors-blue black and gold Inside gold lacquered XX quality natural cork discs faced with aluminum center of medium width diameter, cork discs-paper backed Cases #1/2--2 cases 50 gross each F.O.B. Brooklyn, N.Y.	34	00	34 00
-----	---	----	----	-------

OK Ketterer

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of Goods.

RECEIVED
AUG 24 1928
M. K. GOETZ
BROOKLYN
N. Y.

1522

1766

DEFENDANT'S EXHIBIT Q Q Q

Cable Address "NANTUS" New York
Telephone Connection

United States District Court
Eastern District of New York
Exhibit Q Q Q in evidence
Date *not yet*

FERDINAND GUTMANN & CO.



"Your Interests Interest Us"

Clerk

Deputy Clerk

Sold to

M.K. Goetz Brewing Co.

St. Joseph, Mo.

Terms 2/10

Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

RUSH TERMINAL NO. 19 BROOKLYN, N. Y. Aug. 31, 1928.

Old Dominion S.S. Norfolk

VIA N & W-Pa-C.G.W. at Chicago.

SHIPPED TO

25,000 Gr. Special Decorated Crowns Gr. 304
Design: Goetz Country Club.
Special Select Natural Cork discs
paper backed.

125 cases 2685 #61/73 - 200 gr. each
1627 1/112 200 " "

A/C Contract 7/20/27

1 Case Hented Caps #501 - No charge

3,000 Gr. Special decorated Crowns Gr. 344
Design: Goetz Country Club
XX quality natural cork discs
faced with aluminum centers.
Cork discs paper backed.

Cases marked with red "F".

15 cases 2717 #1/2 - 200 gr. each
5/17- 200 gr. each

A/C Contract 6/22/28

F.O.B. Brooklyn, N.Y.

7500 00

1020 00

8520 00

170 40

8,349 60

Paid 9/18/28

8/23- 3400

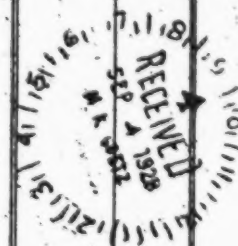
8/21 45000

855400

170 108

8,382,92

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.



1523 1767

DEFENDANT'S EXHIBIT R R R

CABLE ADDRESS "GUTMAN" NEW YORK
TELEPHONE CONNECTION

United States District Court
Eastern District of New York

Exhibit R R R in evidence

Date

Clerk
Deputy Clerk

FERDINAND GUTMANN & CO.



Sold to

M. K. Goetz Brewing Co.

St. Joseph, Mo.

RECEIVED
OCT 1 1928

Terms 2/10

Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Sept. 21, 1928.

SHIPPED TO

VIA Express Prepaid.

200	Gr. Special Decorated Crowns	Gr. 34¢	68	00	68	00
-----	------------------------------	---------	----	----	----	----

Design: "Goetz Country Club"
2 colors: Blue black and gold
Inside gold lacquered
XX quality natural cork discs faced
with aluminum center of medium width
diameter, cork discs - paper backed

1 case-\$70

P.O.B. Brooklyn, N.Y.

Rec'd OK Letter 134-4

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of goods.

290 136
664

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DEFENDANT'S EXHIBIT 888

CABLE ADDRESS "HANTUS" New York
TELEPHONE CONNECTION

United States District Court

Eastern District of New York

Exhibit in evidence

Date

Clerk

Deputy Clerk

Sold to

Term: 2/10

Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

SHIPPED TO

FERDINAND GUTMANN & Co



"Your Interests, Our Aim"

M. K. Goets-Brewing Co.,

St. Joseph, Mo.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

Oct. 26, 1928.
Old Dominion S.S., New-
port News-CAO-PA-C.C.M.
St Chicago.

26,800

Gr. Special Decorated Crowns Gr. 34/

9112 00 9112 00

2 colors: Blue black and gold
Inside gold lacquered

XX quality natural cork discs faced with
aluminum center of medium width diameter
cork discs - Paper backed

2717-18/69-71/135--2779-12/18--134 case
200 gross each

Case Nested Caps #1875

A/C Contract 6/22/28

F.O.B. Brooklyn, N.Y.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All orders must be made within five days from receipt of goods.

134-4
34-4

RECEIVED
OCT 29 1928
K. GUTMANN

1875-4
89297.6
2/18/29
29.2
29.2

1525
1769

DEFENDANT'S EXHIBIT T T T

CASE ADDRESS "HANTUS" NEW YORK
TELEPHONE CONNECTION

United States District Court
Eastern District of New York

FERDINAND GUTHMANN & CO.



Exhibit T.T.T. in evidence

Date *12/31*

12/31 Clerk
12/31 Deputy Clerk
Sold to

M. K. Goetz Brewing Co..

St. Joseph, Mo.

Terms: 2/10
Payable in N. Y. Exchange

Goods shipped at purchaser's risk.

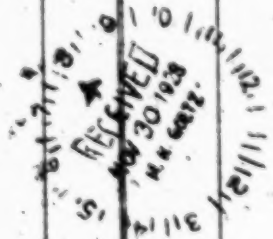
ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Nov. 24, 1928.

SHIPPED TO

VIA Universal C/L & Dist. Co.

800	Gr. Special Decorated Crowns Gr. 34¢	272	00	
	Design: "Goetz Country Club"			
	2 color decoration: Blue black and gold			
	Inside gold lacquered			
	Natural cork discs - XX quality			
	Aluminum centers - cork discs - paper backed			
	#119/122--4 cases--200 gr. each			
200	Gr. Special Decorated Crowns Gr. 34¢	68	00	340 00
	Design: "Goetz Country Club"			
	2 color decoration: Blue black and gold			
	Inside gold lacquered			
	Natural cork discs - XX quality			
	Aluminum centers - cork discs specially stuck			
	1 case #1892 marked in red.			
	F.O.B. Brooklyn, N.Y.			
	B/L enclosed.			
<p><i>Free Post on 1 case crown 11/12 99.44</i></p> <p><i>340.40</i></p> <p><i>40.96</i></p> <p><i>6.80</i></p> <p><i>29.16</i></p> <p><i>134.4</i></p>				

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of goods.



TELE. ADDRESS "MANTUS" NEW YORK
TELEPHONE CHARTER

St. Joseph, Mo.

(Goods shipped at purchaser's risk.)

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Nov. 30, 1928.

Denigh Valley-Grand Trunk
via line c/o C.G.W. at Chicago

SHIPPED TO

Gr. Special Decorated Crowns Gr. 34j

9112 ✓

XX quality natural cork discs faced with aluminum center of medium width diameter, cork discs - paper backed

#19/29-35-37-38-40-41-45/118-125/166.
134 cases--200 gr. each

A/C Contract 6/22/28
P.O.B. Brooklyn, N.Y.

One Hotted Cape

No.	Charge
1	1.00
2	1.00
3	1.00
4	1.00
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96	1.00
97	1.00
98	1.00
99	1.00
100	1.00

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All orders must be made within five days from receipt of Goods.

1527

1771

CABLE ADDRESS "GUTMANN" NEW YORK
TELEPHONE COMPANY

Sold to

M. K. Coets Brewing Co.,

St. Joseph, Mo.

Terms 2/10

Payable to N. Y. Exchange

Goods shipped at purchaser's risk

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
ELISH TERMINAL NO. 19 BROOKLYN, N. Y. Dec. 31, 1925.

SHIPPED TO

VIA Universal C/L & Dist. Co.

600

Gr. Double Lacquered Crown Gr. 324

198

00

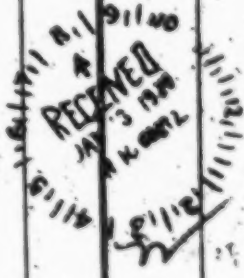
198

00

XX quality natural cork discs faced with
aluminum center of medium width diameter
cork discs paper backed

3 cases--200 gross each

F.O.B. Brooklyn, N.Y.

Balance of order will follow.For *Mable T...*
LALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All orders must be made within five days from receipt of goods.

1528

1772

CABLE ADDRESS "NANTUS" New York
TELEPHONE CONNECTICA

FERDINAND GUTMAN & CO.



Sold to

M. K. Goetz Brewing Co.,

St. Joseph, Mo.

Terms: 2/10

Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN N. Y. Jan. 16, 1929.

Lehigh Valley a/o

VIA Wabash c/o C. G. W. at C.

SHIPPED TO

15,600	Gr. Special Decorated Crowns	No Charge	
	Design: "Goetz Country Club" 2 color decoration; Blue black and gold Inside gold lacquered Natural cork discs - Paper backed 1908--#1/79--79 cases--200 gr. each		
	Reconditioned with aluminum centers A/C 136 cases returned to us 12/5/28 and 1 case returned to us 11/19/28		
11,000	Gr. Special Decorated Crowns Gr. 24	3940 00	3940 00
	Design: "Goetz Country Club" 2 color decoration; Blue black and gold Inside gold lacquered Natural cork discs faced with aluminum centers - Special adhesive 2908--#1/55--55 cases--200 gr. each	2900	7480
			366520
1	Cases Nested Caps #1901	No Charge	
2903 - 1/55	Cases stencilled in red.		
	F.O.B. Brooklyn, N.Y.		
	B/L attached.		

134-4
Brooklyn Dept. SuppliesOK
CALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of goods.

1529

1773

CABLE ADDRESS "NANTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.



Sold to

M. K. Goetz Brewing Co.

St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Feb. 15, 1929.

SHIPPED TO

Via Universal C/L & Dist. Co.

800

Gr. Special Decorated Crowns Gr. 34s
Design: "Goetz Malt Tonic"
2 color decoration: Green and gold
Inside gold lacquered
Natural cork discs faced with aluminum
center of medium width diameter cork
discs paper backed - Special adhesive

#1/4--4 cases--200 gr. each

A/C Contract 6/28/28
P.O.B. Brooklyn, N.Y.

272

00

272

00

272

544

266.56

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of goods.

1530
1774

CABLE ADDRESS "MANTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.



"Your Future, Our Business"

Sold to

M. K. Goetz Brewing Co.

St. Joseph, Mo.

Terms 2/10, net cash 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Feb. 21, 1929.

L.V. c/o Wabash c/o C.G.W.

VIA at Chicago Southern #166649

SHIPPED TO

1,180	<p>Gr. Specila Decorated Crowns Gr. 34g Design: "Goetz Malt Tonic" 2 color decoration: Green and gold Inside gold lacquered Natural cork discs faced with aluminum center of medium width diameter cork discs paper backed - Special adhesive 1934-#6/9-5 cases-200 gr. each #10-1 case-180 gr.</p>	401	20	
14,825	<p>Gr. Special Decorated Crowns Gr. 34g Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs faced with aluminum center of medium width diameter - Cork discs paper backed - Special adhesive 2903-#56/124-69 cases-200 gr. each 1908-#138/142-5 cases-205 gr. each</p>	5040	50	
	<p>A/C Contract 6/22/28 F.O.B. B'klyn, N.Y. Cases Stencilled in Red.</p>			5441 70
11,600	<p>Gr. Special Decorated Crowns Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs - Paper backed Reconditioned with aluminum centers a/o 136 cases returned to us 12/5/28 and 1 case returned to us 11/19/28 1908-#80/137-58 cases-200 gr. each Case Nested Caps #101</p>			

B/L enclosed.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within the days from receipt of goods.

134 4
No charge
RECEIVED
FEB 25 1929
5/8

1531

1775

CABLE ADDRESS "MANTUS" NEW YORK
TELEPHONE CONNECTION



Sold to

M.K. Goetz Brewing Co.,

St. Joseph, Mo.

Terms: 2/10 or net cash 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. March 11, 1929

VIA Universal O/L & Dist. Co.

SHIPPED TO

1,000

Gr. Special Decorated Crowns

Gz. 34¢

340

00

340

00

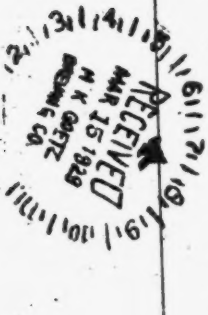
Design: Artificial Grape - Flavor & Color
Inside gold lacquered
2 color decoration: White and purple
Natural cork discs faced with aluminum
center of medium width diameter, cork
discs - Paper backed
Special adhesive

#4/8--5 cases--200 gr. each

A/C Contract 6/22/28
F.O.B. Brooklyn, N.Y.

Balance of order will follow.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.



1532
1776

CABLE ADDRESS "HANTON" NEW YORK
TELEPHONE CONNECTION



Sold to

M. L. Coats Brewing Co.,

St. Joseph, Mo.

Terms 2/10 or net cash 30 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. March 11, 1929

SHIPPED TO

VIA Universal C/L & Dist. Co.



1,000	Gr. Special Decorated Crows	Gr. 54¢	\$40	00	\$40	00
	Design: Artificial Crows - Flavor & Color Inside gold lacquered 2 color decoration: White and purple Natural cork discs faced with aluminum center of medium width diameter, cork discs - Paper backed Special adhesive A/S--5 cases--200 gr. each A/S Contract 6/22/28 P.O.R. Brooklyn, N.Y. Balance of order will follow. ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE. All claims must be made within five days from receipt of goods.					

1533
1777

CABLE ADDRESS "HARKINS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.



"Your FAVORITE BOTTLES"

awik

4/13
7/2
Sold to

M.K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 3, 1929.
Old Dominion S.S. Newport
VIA News, C&O, Pa. C.G.W. at O.

SHIPPED TO

2,000	Gr. Special Decorated Crowns Gr. 34 1/2 Design: "Artificial Grape-Flavor & Color" Inside gold lacquered 2 color decoration: White and purple Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed - Special adhesive	680	00	
A	#201/210--10 cases--200 gr. each			
26,800	Gr. Special Decorated Crowns Gr. 34 1/2 Design: "Goetz Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs faced with aluminum center of medium width diameter cork discs paper backed - Special adhesive	9112	00	✓
	#5/134--154 cases--200 gr. each			9792 00
1	Case Nested Caps #1935			
	A/O Contract 6/22/28 F.O.B. Brooklyn, N.Y.			

(2)

134-4
W. H. H. H.

Do not deduct 3740
200 discount 44170
some with 7990
on or after 189737
37947
185943

RECEIVED
APR 11 1929
BUSH TERMINAL
BROOKLYN, N.Y.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1778

FERDINAND GUTMANN & Co



***YOUR INTERESTS INTEREST US**

Sold to

M.K. Goetz Brewing Co.

St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN N. Y. April 29, 1929.

old Dominion S. S. to

Via Norfolk-New-Pa. C. & G. W. at C.

SHIPPED TO

24,800	Gr. Special Decorated Browns Gr. 34	9112	00	9112	00
	Design: "Goets Country Club" 2 color decoration: Blue black and gold Inside gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed - Special adhesive				
	#1/134--134 cases--200 gr. each				
	A/C Contract 6/22/28 F.O.R. Brooklyn, N.Y.				(Q)
1,000	Gr. Ditto	No Charge			
	#37/41--5 cases--200 gr. each	as per our			
		letter of			
		April 10, 1929.			
1	Case Nested Caps #1999				
	134-4 Bottling Dept Supplies				
		OK			

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of goods.

1535

1779

CABLE ADDRESS "NAMTUS" NEW YORK
TELEPHONE CONNECTION

HX

FERDINAND GUTMANN & Co.



Sold to

M. K. Goets Brewing Co.,

- Due -

8/29

St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchasers risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN N. Y. May 29, 1929.

Old Dominion S. S.

VIA Norfolk, N.W., Pa. C. C. V. at C. ✓

SHIPPED TO

26,800	Gr. Special Decorated Crowns	Gr. 34	9112 00	9112 00
--------	------------------------------	--------	---------	---------

Design: "Goets Country Club".
2 color decoration: Blue black and gold.
Inside special adhesive gold lacquered
Natural cork discs faced with aluminum
center of medium width diameter
Cork discs paper backed

#1/134--134 cases--200 gr. each

1 Case Nested Caps #2035

A/O Contract 6/22/28

F.O.B. Brooklyn, N.Y.

134-4
Bottling Co.ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of goods.

1536

1780

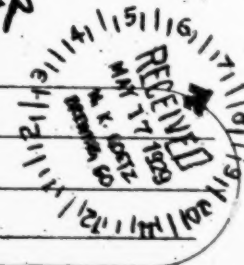
CABLE ADDRESS "HANTUS" NEW YORK
TELEPHONE CONNECTION

A N

FERDINAND GUTMANN & Co



*Do not
Sold to
any one
else*
J. E. Connelley & Co.
St. Joseph, Mo.



Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

PLEASE ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. May 14, 1929.
Old Dominion S.S. New Port
Via Route 240 Pa. O. G. W. at Chicago

SHIPPED TO

<p>26,800</p> <p>(7)</p> <p>1</p> <p>⊙</p>	<p>Gr. Special Decorated Crowns Gr. 34</p> <p>Design: "Goets Country Club"</p> <p>2 color decoration: Blue black and gold</p> <p>Inside special adhesive gold lacquered</p> <p>Natural cork discs faced with aluminum</p> <p>center of medium width diameter</p> <p>Cork discs - Paper backed</p> <p>#1/134--134 cases--200 gr. each</p> <p>Case Nested Caps #2034</p> <p>A/O Contract 6/22/28</p> <p>F.O.B. Brooklyn, N.Y.</p> <p>ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE</p> <p>All claims must be made within five days from receipt of Goods.</p>	<p>9112 00 9112 00</p> <p>134-4</p> <p>2nd Rep. for</p> <p>5</p>
--	---	--

1537
1781

CABLE ADDRESS "NANTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.



M. K. Goetz Brewing Co.,

St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN N. Y. June 15, 1929.

Old Dominion S.S. New-

VIa port News-C&O, Pa. C. & W. at C.

SHIPPED TO

26,800	Gr. Special Decorated Crowns Gr. 54c	9112	00	9112	00
1	<p>Design: Goetz Country Club 2 color decoration: Blue black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter - Cork discs - Paper backed #1/75-76/134--134 cases--200 gr. each</p> <p>A/O Contract 6/22/28</p> <p>Case Nested Caps #1146</p> <p>F.O.B. Brooklyn, N.Y.</p>	134-4 Bottling	<p>RECEIVED JUN 17 1929 N K GOETZ BREWING CO.</p>		
<p>ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE. All claims must be made within five days from receipt of goods.</p>					

1538
1782

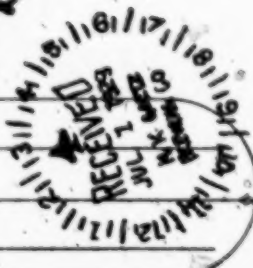
Cable Address "NAMTUE" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.



Sold to

M. K. Goetz Brewing Co.
St. Joseph, Mo.



Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. June 28, 1929.
Old Dominion S. S. Norfolk
Via N.Y.-Pa. C. & W. at Chicago

SHIPPED TO

<p>26,800</p> <p>⑦</p> <p>1</p>	<p>Gr. Special Decorated Crowns Gr. 34¢</p> <p>Design: "Goetz Country Club"</p> <p>2 color decoration: Blue black and gold</p> <p>Inside special adhesive gold lacquered</p> <p>Natural cork discs faced with aluminum</p> <p>center of medium width diameter</p> <p>Cork discs - Paper backed</p> <p>3204-#1/85--2189-#76/87-89/93-111/134-</p> <p>#102/104-95-97/100--134 cases--200 gr. each</p> <p>Case Nested Caps #2084</p> <p>A/O Contract 6/28/28</p> <p>P.O.B. Brooklyn, N.Y.</p>	<p>9112</p> <p>134-4</p>	<p>00</p>	<p>9112</p>	<p>00</p>
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ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of goods.

1539

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CABLE ADDRESS "NANTUS" NEW YORK
TELEPHONE CONNECTION

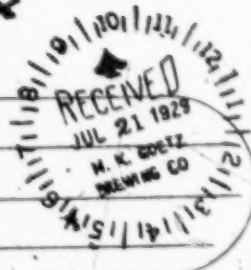
FERDINAND GUTMANN & CO.



Sold to

M.K. Goetz Brewing Co.,

St. Joseph, Mo.



Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. July 19, 1929.
Old Dominion S.S. Newport
Via News-C&O-C. C. W. at Chicago

SHIPPED TO

26,800

Gr. Special Decorated Crowns Gr. 24
Design: "Goetz Country Club"
2 color decoration: Blue black and gold
Inside special adhesive gold lacquered
Natural cork discs faced with aluminum
center of medium width diameter - cork
discs - Paper backed
3171-21/75-3169-488-94-96-101-105-110-
3204-486/134--134 cases--200 gr. each

1

Case Nested Caps Order #2085
A/C Contract 6/22/28
F.O.B. Brooklyn, N.Y.

9112

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9112

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732 87

8379.13

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of goods.

1540

1784

Cable Address "HARTUP" New York
Telephone Connection

FERDINAND GUTMANN & Co.



RECEIVED
AUG 2 1929
J. K. GOETS
BROOKLYN, N. Y.

Sold to

M.K. Goetz Brewing Co.,

St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

July 30, 1929 as of

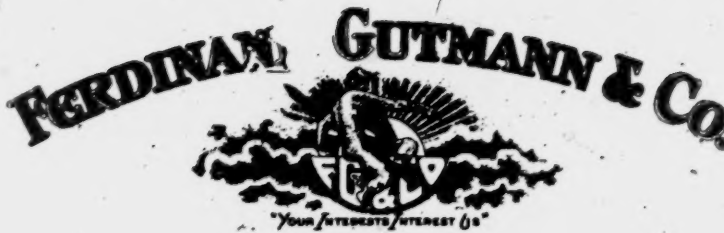
Sept. 1, 1929.
Old Dominion S.S. Norfolk
Via N.Y. - Pa. O. & W. at Chicago.

SHIPPED TO

<p>26,800</p> <p>(7)</p> <p>1</p>	<p>Gr. Special Decorated Crowns Gr. 34</p> <p>Design: "Goetz Country Club"</p> <p>2 color decoration: Blue black and gold</p> <p>Inside special adhesive gold lacquered</p> <p>Natural cork discs faced with aluminum</p> <p>center of medium width diameter, cork</p> <p>discs paper backed</p> <p>3261-#1/134--134 cases--200 gr. each</p> <p>Case Nested Caps #2131</p> <p>A/C Contract 6/28/28</p> <p>F.O.B. Brooklyn, N.Y.</p> <p>ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE</p> <p>All claims must be made within five days from receipt of Goods.</p>	<p>9112 00 9112 00</p> <p>290</p> <p>18224</p> <p>892976</p> <p>36</p> <p>34990</p> <p>512</p> <p>880</p> <p>1640</p> <p>27</p>
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1541
1785

Cable Address "NAMTUS" NEW YORK
TELEPHONE CONNECTION



Sold to

M.K. Goetz Brewing Co.,
St. Joseph, Mo.

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.
Aug. 10, 1929 as of
Sept. 10, 1929.
Old Dominion S. S. Newport
VIA News-C&O-Pa-C.G.W. at C.

SHIPPED TO

25,800	Gr. Special Decorated Crowns Gr. 34	9112 00 9112
	Design: "Goetz Country Club"	290 182 221
	2 color decoration: Blue black and gold	
	Inside special adhesive gold lacquered	
	Natural cork discs faced with aluminum	
	center of medium width diameter, cork	
	discs paper backed	
	#1/134--134 cases--200 gr. each	8929 76
1	Case Nested Caps #2132	
	A/O Contract 6/22/28	
	P.O.B. Brooklyn, N.Y.	
	ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE	
	All claims must be made within five days from receipt of goods.	

RECEIVED
AUG 12 1929
M. K. GOETZ
BREWING CO.

1542

1786

CABLE ADDRESS "HANTUG" NEW YORK
WIRE CONNECTION

FERDINAND GUTMANN & Co.



"YOUR INTERESTS ARE OURS"

Sold to

M.K. Goetz Brewing Company

St. Joseph, Mo.

Terms 2/10 N/90
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.

September 19, 1929

Old Dominion S.S. Norfolk-N.Y.

VIAPA.-C.G.W. at Chicago

SHIPPED TO

26,800

Gr. Special decorated crowns Gr. 34/

Design: Goetz Country Club

2 color decorated-blue, black and gold

Inside special adhesive gold lacquered

natural cork discs faced with aluminum

center of medium width diameter, cork

discs paper backed.

Cases #1/134--134 cases 200 gross each

Case #2135--1 case rested caps

A/C contr. 6/22/28

F.O.B. Brooklyn, N.Y.

9112 00

9112 00

18224

592976

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.

All claims must be made within five days from receipt of Goods.

57/18

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CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

*Sold to*

M.K. Goetz Brewing Company

St. Joseph, Mo.

CE140

Terms: 2% 10 days net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. March 13th 1930
Via Dominion S/S-S.S. Newport
VIA News-C&O-Pa-C.G.W. at Chicago

SHIPPED TO

26,800

Gr. Special decorated crowns Gr. 34
Design: Goetz Country Club
2 color decorated-blue, black and gold
Inside special adhesive gold lacquered
Natural cork discs faced with aluminum
center of medium width diameter, cork
discs paper backed

#3441 - #1/32---#3425 - 1/58---
#3700 - 101/143---#3786 - 201 - 134
cases 200 gross each

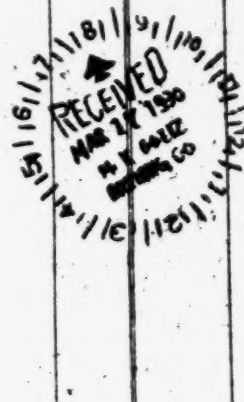
A/O contr. 6/22/28

1 Case nested caps

F.O.B. Brooklyn, N.Y.

9112 00

9112 00



ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1544
1788

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION



Our order #C2277

Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

M.K. Goetz Brewing Co.

St Joseph, Mo.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Mar. 13, 1930

SHIPPED TO

VIA with car 3/15/30

196	Gr. Special Decorated Crowns Natural cork discs without paper backing faced with aluminum center of medium width diameter gr. 33 1/2	65	66		
	#502--1 case 196 gross				
202	gr. Special decorated Crowns mold-proof compo cork 8/1" without paper backing with aluminum center of medium width diameter gr. .28	56	56	122	22
	#301--1 case 202 gross				
	Design: Goetz Country Club 2 color decorated -blue black and gold. Inside special adhesive lacquer				
	Note: both the above cases stencilled in red ink and marked Attention Mr. Ketterer				
	F.O.B. Brooklyn, N.Y.				

3 In. + for
right In. + for
170 lbs



ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1545

1789

CABLE ADDRESS "NAMTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.



"Your Interests Interest Us"

Sold to

W.K. Goetz Brewing Co.

St Joseph

Mo.

our order #02282
Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

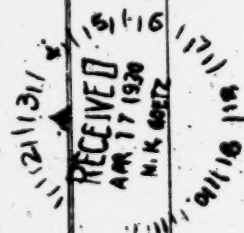
ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 14, 1930

SHIPPED TO

VIA See Below

26,800	Gr. Special Decorated Crowns gr..34 Design: Goetz Country Club 2 color decorated-blue, black and gold Inside special adhesive gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed A/C Contract 6/22/28- #144/9-151/4-1/124--134 cases 200 gross ea.	9112	00		
2,050	Gr. Special Decorated Crowns gr. .34 Design: Artificial Grape flavor and color Inside special adhesive and gold lacquered Natural cork discs faced with aluminum center of medium width diameter, cork discs paper backed 2 color decorated- white and purple #201/7--7 cases 200 gross each #208/210--3 cases 210 gross each	690	20		
200	Special decorated crowns gr. .35 1/2 Design: Goetz Country Club 2 color decorated -blue, black and gold Inside gold lacquered Natural cork discs faced with aluminum centers of medium width dia. cork discs without paper backing The case stencilled in red with the letter L in each corner #301--1 case 200 gross 1 case of nested caps Bill of lading enclosed	67	00	9860	20
Via: Old Dominion S.S. Norfolk, - N & W Pa. C.G.W. at Chicago. F.O.B. Brooklyn, N.Y.					

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of Goods.



1546

1790

CABLE ADDRESS "WANTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.



"Your favorites INTERESTED"

Sold to

M.K. Goetz Brewing Co.

St. Joseph, Mo.

Our order #02317
 Terms: 2/10 net 90 days
 Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY.

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. May 13, 1930
 Old Dominion S.S. Newport News
 VIA C & O - Pa-C.G.W. at Chicago.

SHIPPED TO

26,800 Gr. Special Decorated Crowns Gr... .34 9112 00

Design: Goetz Country Club
 2 color decorated- blue black and gold
 Inside special adhesive gold lacquered
 Natural cork discs faced with aluminum
 center of medium width diameter, cork discs
 paper backed

A/C Contract 6/22/28-

#1/134--134 cases 200 gross each

2,030 Gr. Special Decorated Crowns gr. .28 568 40

Design: Goetz Country Club
 2 color decorated - blue black and gold
 Inside gold lacquered
 mold-proof compo cork 8/1" without paper
 backing with aluminum center of medium
 width diameter-cases marked with large
 red D

#201/7--7 cases 200 gross each

#207/10-3 cases 210 gross each

2,025 Gr. Special Decorated Crowns gr..28 577 13

Design: Goetz Country Club
 2 color decorated-blue black and gold
 Inside special adhesive gold lacquered
 mold-proof compo cork 8/1" paper back
 with aluminum center of medium width
 diameter

Cases marked with large red P

#301/7--7 cases 200 gross each

#308/9--2 cases 210-gross each

#310--1 case 205 gross

1 case of nested caps #3304

P.O.B. Brooklyn, N.Y.

RECEIVED
 MAY 16 1930
 N.Y. OFFICE
 12/11/11 11/11/11 10/11/11 9/11/11 8/11/11 7/11/11 6/11/11 5/11/11 4/11/11 3/11/11 2/11/11 1/11/11

10,259 53

20515
 10,052 38

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
 All claims must be made within five days from receipt of goods.

1547

1791

CABLE ADDRESS "NAMTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.



Sold to

M.K. Goetz Brewing Co.

St Joseph,

Mo.

Our Order # 02336
Terms: 2/10 net 30 days
Payable in N. Y. Exchange:

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y.
June 13, 1930
Via Dominion S.S. Norfolk
VIA N. & W. Pa.-C.O.W. at Chicago.

SHIPPED TO

25,800	Gr. Special Decorated Crowns gr..34	9112	00	
	Design: Goetz Country Club			
	2 color decorated- blue black and gold			
	Inside special adhesive gold lacquered			
	Natural Cork Discs faced with aluminum			
	center of medium width diameter, cork discs			
	paper backed			
	#1/134--134 cases 200 gross each			
1	Case of Beated Caps			
1,015	Gr. Crowns gr..29	294	35	9404.35
	Design: Lemon Soda			
	Artificial Flavor			
	and color			
	2 color decorated- blue and white			
	Inside gold lacquered			
	3/1" compo discs and aluminum center			
	gold proof compo discs			
	201/3--3 cases 200 gross each			
	#204--1 case 205 gross			
	#205--1 case 210 gross			
	Cases marked with a red Letter "L"			
	B/L Enclosed			
	P.O.B. Brooklyn, N.Y.			

OK *Handwritten signature*



ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1548

1792

CABLE ADDRESS "HANTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.

*Sold to*

M.K. Goetz Brewing Co.

St Joseph, Mo.

Order No. 62364
Terms: 2/10 net 90 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. July 10, 1930
Old Dominion S.S. Newport News
VIA C&O-Pa-C.G.W.-at Chicago

SHIPPED TO

24,800

Gr. Special Decorated Crowns gr..34
Design: Goetz Country Club
2 color decorated- blue black and gold
Inside gold lacquered -special adhesive
Natural cork discs faced with aluminum
center of medium width diameter cork
discs paper backed gr.
#1/134--134 cases 200 each

9112

00

9112

90

A/C Contract 6/22/28-

F.O.B. Brooklyn, N.Y.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1929

1549

1793

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & Co.



Sold to

M.E. Goetz Brewing Co.

St Joseph, Mo.



Order No. 02400
Terms: 2/10 Net 30 days
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN, N.Y. July 30, 1930
Old Dominion S.S. Norfolk,
VIA N & W. Pa. C.G.W. at Chicago

SHIPPED TO

26,800

gr. Special Decorated Crowns gr..54
Design: Goetz Country Club
2 color decorated- blue black and gold
Inside special adhesive gold lacquered
natural cork discs faced with aluminum
center of medium width diameter cork
discs paper backed

#1/234--134 cases 200 gross each

A/C Contract 7/26/29
B/I Enclosed
F.O.B. Brooklyn, N.Y.

9112

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9112

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15-21
9929.76
OK

*1344
Waiting list
supplying*

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE
All claims must be made within five days from receipt of Goods.

1550
1794

CABLE ADDRESS "NANTUS" NEW YORK
TELEPHONE CONNECTION



Sold to

McK. Goets Brewing Co.,

St. Joseph, Mo.

Q 2531

Terms: 10 days net 30
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Dec. 31st, 1930

Old Dominion S S Newport News
C & O-Pa. CGW at Chicago

SHIPPED TO

VIA

5,200 Gross Special Decorated Crowns Gr..34
Design: Goets Country Club
2 color decorated - blue black and gold
inside special adhesive gold lacquered
Specialty reselcted natural cork discs
faced with aluminum center of medium width
diameter, cork discs paper back
#1/41-41 Cases \$90 gross each

2788 00

19,200 Gross Special Decorated Crowns
Design: Goets Country Club
2 color decorated - blue black and gold
inside gold lacquered
would proof composition cork discs
9/1" aluminum center-medium diameter
#101/196-96 Cases \$90 gross each

Gr..23 5472 00

8260 00

Balance of order will follow

B/L enclosed

F O B Brooklyn, N.Y.

*Entered in
G. H. H. H.
127*

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
25 claims must be made within 60 days from receipt of Goods.

1551

1795

CABLE ADDRESS "NASTUS" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.

*Sold to*

M. K. Goetz Brewing Co.,

St. Joseph, Mo.

7/100

Order No. C 2548

Terms: 2% 10 days net 30

Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. January 30th, 1931

SHIPPED TO

VIA Old Dominion S.S. Newport News

C & O-Pa-C.O. at Chicago.

		Gr..20 1/2	6612	00	6612	00
23,200	gross Special Decorated Crowns				14	70
	Design: Goetz Country Club	<i>See invoice attached</i>			6597	30
	2 color decorated - blue black, and gold				132	24
	inside gold lacquered				6465	06
	Mould proof composition cork discs	<i>See 290 Disc</i>				
	9/16" aluminum center medium diameter					
	\$1/99-201/210-197/203--116 cases 200 gross each					
	B/L enclosed					
	P O B Brooklyn, N.Y.					
		<i>134-4</i>				
		<i>Bottling</i>				
		<i>Apples</i>				

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1552

1796

CABLE ADDRESS "NANTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.



3 Invoices
Less 7% 3d inv
Lump sum

Sold to

M. K. Goetz Brewing Company

St. Joseph, Mo.

Order No. C 2558
Terms: 2% 10 days net 30
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY.

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. March 26th, 1931

SHIPPED TO

VIA Old Dominion S.S. Norfolk
N & W-Pa C.C.W. at Chicago

26,800	Gross Special Decorated Crowns	Gr..28	7504	00	7504	00
	Design: Goetz Country Club					
	2 color decorated - blue black and gold					
	inside gold lacquered					
	mould proof composition cork discs					
	9/1" aluminum center medium diameter					
	#1/134--134 cases 200 gross each					
	F O B Brooklyn, N.Y.					

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1553

1797

CABLE ADDRESS "HAMTUG" NEW YORK
TELEPHONE CONNECTION



Sold to

_____ H.Z. Goetz Brewing Company

_____ St. Joseph.

_____ Mo.

Order No. C 2592
Terms: 2 1/2 10 days net 30
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

BUSH TERMINAL NO. 19 BROOKLYN, N. Y. April 18th, 1931

SHIPPED TO

VIA Universal C/L & Dist Co.

2,000	Gross Double lacquered Crowns 9/1" composition cork mould proof and aluminum center - medium diameter #2592--1/9--9 cases 200 gross each #2578-6--1 case 200 gross F O B Brooklyn, N.Y. B/L enclosed Balance of order will follow	Gr..26	520 00	520 00
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ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.



1554

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CABLE ADDRESS "NAMTUG" NR . ORK
TELEPHONE CONNECT

FERDINAND GUTMANN & Co

Sold to

Order No. C 2596
Terms: 2 1/2 10 days net 30
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY

SHIPPED TO

VIA Old Dominion S.S. ^{New} -Port News

PA-C.G.W. at Chicago

30,000

gross Special Decorated Crowns

Gr. 28

Design: Goats Country Club

8400

00

8400

60

2 color decorated - blue black, and gold

inside gold lacquered

would proof composition cork discs

9/1" aluminum center - medium diameter

71/150--150 cases 200 gross each

F O B. Brooklyn, N.Y.

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

1799

CABLE ADDRESS "NANTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO

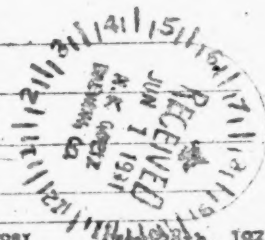


*YOUR INTERESTS/INTEREST 63

Sold to

H.E. Costa Brewing Co.

St. Joseph, Mo.



Order No. 0 2618
Terms: 2% 10 days net 30
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
CASH TERMINAL NO. 12 BROOKLYN, N. Y.

SHIPPED TO

VIA -G.M. Dominion S.S. Norfolk-
V & W. Co. S.S. at Chicago

No. 000		Gross Special Decorated Crowns		No. 000		Gross 00.		Gross 00	
(7)		Design Costa Country Club		22-22					
		2 color decorated - blue black and gold		Less 1/10				148.00	
		inside gold lacquered							
		would proof composition cork discs						8232.00	
		9/16" aluminum center - medium diameter							
		41/150-150 cases 200 gross each							
		F O B Brooklyn, N.Y.							
		134-4		Am		As 6/10			
		1200 Days		By		H		029	
								W	

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of goods.

1556

1800

CABLE ADDRESS "NANTUG" NEW YORK
TELEPHONE C-1123

FERDINAND GUTMANN & Co.



Sold to

Mr. 2/18

M. K. Goetz Brewing Co.

St. Joseph, Mo.

RECEIVED
JUL 6 1931
M. K. GOETZ
BREWING CO.

Order No. C-2640
Terms: 2, 10 days 30 Net
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. July 2-1931
Old Dominion St. Newport
VIA News - C&O-Pa-C.G.W. at Chicago

SHIPPED TO

30,000	Gr. Special Decorated Crowns Design: Goetz Country Club 2 color decorated-blue black, and gold. Inside gold lacquered Mould proof composition cork discs 9/1" aluminum center	Gr. .28	8400 00	8400 00
	#4944 - \$1/150 - 150 cases 200 gross each			
	a/c contract 2/26/29			
	Your Order - Letter 6/25/31			
	F.O.B. - Brooklyn, N.Y. - carload freight allowed			

See for Less 20%

134 4

and Dan 1 left plain

JOHN

ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE.
All claims must be made within five days from receipt of Goods.

EX C.

N

1557

1801

CABLE ADDRESS "HANTUS" NEW YORK
T. PHONE CONNECTION

FERDINAND GUTMANN & Co.



Sold to

M. K. Goets Brewing Company

St. Joseph,

No.

Order No. 0 2655

Terms: 2 1/2 10 days Net 30

Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. July 31-1931
as of August 10-1931

SHIPPED TO

VIA Old Dominion 38 Norfolk-NEW-Pa.
U.S. V. M. Chicago

30,000	Gr. Special Decorated Crowns Design: Goets Country Club 2 Color decorated - blue black, and gold Inside gold lacquered Mould proof composition cork discs 9/16" aluminum centers	Gr. .25	8400 00	8400 00
	\$1/150 — 150 cases 200 Gross each			
	a/c contract 7/28/29			
	F.O.B. — Brooklyn, N.Y. Carload freight allowed			
	B/L enclosed			
	ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE All orders must be made within five days from receipt of goods.			

(7)

Len Port
Len 168
134-4
Sold
12/10/31

54,3

1558

1802

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

ank

FERDINAND GUTMANN & CO.



7
31
22
60 *Sold to*

Order No. 0 2725
Terms: see below
Payable in N. Y. Exchange.

Goods shipped at purchaser's risk.

Due 1/2/29 ✓
M. K. Goetz Brewing Co.
St. Joseph, *7243* ✓
Mo. *Less for*

ADDRESS ALL MAIL TO OUR MAIN OFFICE AND FACTORY
BUSH TERMINAL NO. 19 BROOKLYN, N. Y. Dec. 24th, 1931

SHIPPED TO

VIA Old Dominion S.S. Newport News
C & O - PA - C. & W. - St. Chicago

30,000 Gross	Special Decorated Crowns Design: Goetz Country Club 2 color decorated - blue black and gold inside gold lacquered liners: mould proof composition cork disc 5/16" and aluminum center	Gr. - <i>24 1/2</i>	7350	00	7350	00
	#1/150 - 150 cases 200 gross each A/C Contract 7/25/29 F O B Brooklyn, N.Y. - carload freight allowed to St. Joseph	<i>Less 1st Bill \$100.00</i>			<i>301.05</i>	
	TERMS: Special Dating 2% discount for payment 60 days from date of Invoice	<i>See 2 90 Rev</i>			<i>7048.92</i>	
	90 days net from date of invoice 2% enclosed				<i>109.00</i>	
	ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE. All claims must be made within five days from receipt of Goods.				<i>6901.92</i>	



1559

1803

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19, 39TH ST. & 2ND AVE.
BROOKLYN, NEW YORKORDER NO. & DATE
REQUISITION NO.
CONTRACT NO.INVOICE DATE 3/21/32
OUR ORDER NO. 02753SOLD
TOM. K. Gotes Brewing Co.
St. Joseph
Mo.SHIPPED TO
AND
DESTINATION

above

DATE SHIPPED

3/21/32

CAR INITIALS AND NO.
HOW SHIPPED AND
ROUTE

Universal C/L & Dist. Co.

TERMS: NET CASH

30 DAYS OR

2% FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE

FROM Brooklyn, N.Y.
Delivered

PREPAID OR COLLECT

prepaid

FOR CUSTOMER'S USE ONLY

REGISTER NO.	VOUCHER NO.	
P. O. CHECKED		
TERMS APPROVED	PRICE APPROVED	
CALCULATIONS CHECKED		
TRANSPORTATION		
FREIGHT BILL NO.	AMOUNT	
MATERIAL RECEIVED		
DATE	SIGNATURE	TITLE
SATISFACTORY AND APPROVED		
ADJUSTMENTS		
ACCOUNTING DISTRIBUTION		
AMOUNT	FINAL APPROVAL	

Package Numbers	Cases Cartons	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
1	1/100	180	Gross Special Decorated Crowns Design: Gotes Country Club 2 color decorated - blue black, and gold inside gold lacquered liners: mould proof composition cork discs 9/16" and aluminum center Case marked "SPECIAL" B/L enclosed 123	Gr. .24 1/2	44 10	44 10
					43 22	88
					970	
					970	

1560

1804

amr

FERDINAND GUTMANN & CO.

BUSH TERMINAL No. 19, 30TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

ORDER NO. & DATE 7/26/29
INQUIRY NO.
CONTRACT NO.

INVOICE DATE 4/29/32
OUR ORDER NO. 02765
of May 1st, 1932

SOLD TO

M. K. Goets Brewing Co.
St. Joseph, Mo.

SHIPPED TO above
AND DESTINATION 4/29/32
DATE SHIPPED FROM Brooklyn, N.Y.
CAR INITIALS AND HOW SHIPPED AND ROUTE Old Dominion S. St. Norfolk-N & W-Pa-
TERMS: NET CASH 30 DAYS OR 2% FOR PAYMENT WITHIN THE DATE FROM INVOICE DATE
C.G.W. at Chicago. Carload frt allowed to St. Joseph, Mo.

FOR CUSTOMER'S USE ONLY	
ORDER NO.	POUNDER NO.
P. & S. ORDER	
TERMS APPROVED	PRICE APPROVED
CALCULATIONS CHECKED	
TRANSPORTATION	
FREIGHT BILL NO.	
MATERIAL RECEIVED	
DATE	SIGNATURE
SATISFACTORY AND APPROVED	
ADJUSTMENTS	
ADJUSTING INSTRUCTIONS	
QUANTITY	FINAL APPROVAL

Package Numbers	Cases	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
15476 1/18	150/200	30,000	Gross Special Decorated Crowns Gr. Design: Goets Country Club 2 color decorated - blue black and gold inside gold lacquered liners: mould proof composition cork discs 9/16" and aluminum center	.24 1/2	7350 00	7350 00
5538 1/132						

Less for attached
134 1/2 Less 270 dis - 1470
OK @

RECEIVED
MAY 2 1932
M. K. GOETS
BREWING CO.

1561

1805

FERDINAND GUTMANN & CO.BUSH TERMINAL No. 19, 35TH ST. & 2ND AVE.
BROOKLYN, NEW YORKORDER NO. & DATE 7/25/29
REGISTRATION NO.
CONTRACT NO.INVOICE DATE 6/30/33
OUR ORDER NO. 02517SOLD
TOM.K. Goets Brewing Co.
St. Joseph
Mo.SHIPPED TO
AND
DESTINATION
DATE SHIPPED 6/30/33

FROM Brooklyn, N.Y.

PREPAID OR COLLECT?

CAR INITIALS AND NO. Old Dominion S.S. Newport News-0 & 0-
HOW SHIPPED AND ROUTE 2 Pa - C.G.W. at Chicagocarload freight
allowed to St. Joseph

TERMS: NET CASH 30 DAYS OR 2% FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE

FOR CUSTOMER'S USE ONLY

QUANTITY NO.	POUNDS NO.
P. O. D. CHECKED	
TERMS APPROVED	PRICE APPROVED
CALCULATION	DATE
TRANSPORTATION	DATE
MATERIALS	DATE
DATE	DATE
SATISFACTORY AND APPROVED	DATE
ADJUSTMENTS	DATE
ACCOUNTING DISTRIBUTION	
FINAL APPROVAL	

Package Numbers	Cases Cartons	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
1/151	151/200	30,200	Gross special decorated crowns Design: Goets Country Club 2 color decorated - blue black and gold inside gold lacquered liners: mould proof composition cork discs 9/16" and aluminum center B/L enclosed	Gr. .247	7599 00	7599 00
				Lead ft		31823
				Less 2% X		709079
						14798
						694279
						W

134 4
Bottling Dept.

1562

1806

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19, 38TH ST. & 2ND AVE.
BROOKLYN, NEW YORKORDER NO. & DATE 11/7/32
ACQUISITION NO.
CONTRACT NO.INVOICE DATE 11/16/32
OUR ORDER NO. C2863SOLD
TOM. K. Goetz Brewing Co.
St. Joseph,
Mo.SHIPPED TO AND DESTINATION
DATE SHIPPED 11/16/32C.R. INITIALS AND NO.
HOW SHIPPED AND ROUTE Universal

TERMS: NET CASH 30 DAYS OR 2 % FOR PAYMENT WITHIN TEN DAYS FROM INVOICE DATE

FROM Brooklyn, N.Y.
P.O. Brooklyn, N.Y.
Frt. allowed to Chicago collect

PREPAID ON COLLECT

FOR CUSTOMER'S USE ONLY 37

REGISTER NO.	VEHICLE NO.
P. O. C. NUMBER	
TERMS APPROVED	PRICE APPROVED
CALCULATIONS CHECKED	
TRANSPORTATION	
PERMIT BILL NO.	AGREENT
MATERIAL RECEIVED	
DATE	SIGNATURE
SATISFACTORY AND APPROVED	
ADJUSTMENTS	
ADDITIONAL INFORMATION	
AUDITED	FINAL APPROVAL

Package Numbers	Case	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
1	1/200	200	gr. double lacquered crowns regular composition cork discs 1/3" thick and aluminum center	Gr. .192	39 00	
		233	Deduct difference in freight between New York to St. Joseph, and Chicago to St. Joseph lbs.	375	2 90	37 10
			1/2 enclosed			74
						36 36

1344
Bottling
Supplies

C. H. Kellner

Less 270

36 36

1807

BUSH TERMINAL NO. 19, 39TH ST. & 3RD AVE.
BROOKLYN, NEW YORK

ORDER NO. & DATE 12/29/32
REGISTRATION NO.
CONTRACT NO. 7/26/29

AS of April 1, 1933
INVOICE DATE 12/30/32
OUR ORDER NO. 02869

**SOLD
TO**

M. K. Goetz Brewing Co.
St. Joseph
Mo.

SHIPPED TO
 AND
 DESTINATION above
 DATE SHIPPED 12/30/32
 CAR INITIALS AND NO.
 HOW SHIPPED AND
 ROUTE Old Dominion
 TERMS, NET CASH 30 DAYS OR 2

FROM Brooklyn, N.Y. PREPARED BY C
P.O. Brooklyn, N.Y.
Carload first allowed to St. Joseph
Norfolk-W & W-Pa-C&W.at Chicago
MAILED MAY 24 1918

PREPARED OR COLLECTED BY:

FOR CUSTOMER'S USE ONLY	
CUSTOMER NO.	VEHICLE NO.
P.O.D. CHECKED	
TERMS APPROVED	PAPER APPROVED
CALCULATIONS CHECKED	
INFORMATION	
PURCHASE BILL CO.	REBUT
MATERIAL RECEIVED	
DATE	SIGNATURE
APPROVED AND APPROVED	
SIGNATURE	
ADDITIONAL CERTIFICATIONS	
DATED	FINAL APPROVAL

Package Number	Case	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
201/63	63/200	12,600	Gr. Reconditioned goods returned 8/19/32 Design: Goats Country Club	248	9,887.00 memo	
1/150	150/200	30,000	Gr. Special decorated crowns Design: Goats Country Club 2 color decorated - blue black and gold inside gold lacquered liners: gold proof composition cork discs 9/16" and aluminum center	Gr. .23 27000	6900 00	8900 00 43284 6467.16 138.00 6329.16
			M/L enclosed			

1808

BUSH TERMINAL NO. 19, 39TH ST. & 2ND AVE
BROOKLYN, NEW YORK

INVOICE DATE May 27, 1933
OUR ORDER NO. C-2936

M. E. Coetz Brewing Company,
St. Joseph,
Mo.

FROM Brooklyn, N. Y. PREPAID OR COLLECT? ☐
P.O. Brooklyn - freight equalized with Chicago
C. & O. P. & C. Co. at Chicago

FOR CUSTOMER'S USE ONLY		4/8
REGISTER NO.		VOUCHER NO.
P. O. S. CHARGED		
TERMS APPROVED		PRICE APPROVED
CALCULATIONS CHECKED		
TRANSPORTATION		
FREIGHT WILL BE		AMOUNT
MATERIAL RECEIVED		
DATE		SIGNATURE
SATISFACTORY AND APPROVED		
ADJUSTMENTS		
AMOUNTING DISTRIBUTION		
ACCEPTED		FINAL APPROVAL

Package Numbers	Case Contents	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
1/149	149/200	29,800	gr. Special Decorated Crowns Design: Goetz Country Club 2 Color Decorated; Blue Black and Gold Inside gold lacquered. Liners: Regular composition cork discs 9/16" and aluminum centers Same quality as our sample case of double lacquered crowns shipped to you Nov. 16, 1932 Allowance of difference in freight between New York to St. Joseph and Chicago to St. Joseph 37,536 lbs. @ per 100 lbs. B/L enclosed	gr. .20 1/2 .28	6109 85	8000 15V 122 18V 587777

134-4
Bottling

1565

1809

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19, 39TH ST. & 2ND AVE
BROOKLYN, NEW YORK

FOR CUSTOMER'S USE ONLY

ORDER NO. & DATE	12/18/33	INVOICE DATE	Dec. 29, 1933
REGISTRATION NO.	6/9/33	OUR ORDER NO.	C-5160
M. K. Goetz Brewing Co.			
St. Joseph,			
Missouri.			
RECEIVED			
K GOETZ			
12/11/1933			

ORDER NO. & DATE 12/18/33
REGISTRATION NO. 6/9/33
CONTRACT NO.

INVOICE DATE Dec. 29, 1933
OUR ORDER NO. C-5160

as of April 1/34

SOLD
TO

M. K. Goetz Brewing Co.
St. Joseph,
Missouri.

SHIPPED TO AND DESTINATION above
DATE SHIPPED 12/29/33
CAR INITIALS AND NO.
HOW SHIPPED AND ROUTE
TERMS: NET CASH 30 DAYS OR 2% FOR PAYMENT WITHIN TEN DAYS FROM DATE OF SHIPMENT

FROM Brooklyn, N. Y. PREPAID OR COLLECT?
P. O. R. Bklyn., N.Y. - carload freight equalized with Chicago
Old Dominion S.S. Norfolk - N&W - Pa. C.O.W. at Chicago, Ill.
April 1, 1934

Package Numbers	Case Contents	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
i/148 148	148/200 1/140	29,730	gr. Special decorated "STAYSTUK" CROWNS gr. Design: Goetz Country Club 2 Color Decorated: Blue Black & Gold Inside gold lacquered	20 1/2	6094 65	
1/38-41/50 48/200	9,600	39,330	gr. Double Lacquered "STAYSTUK" CROWNS gr. All above crowns have Liners: Regular Composition Cork Discs 9/1" and "STAYSTUK" Aluminum Center Spot	.19	1824 — 7918 65	
			Allowance of difference in freight between New York to St. Joseph and Chicago to St. Joseph 48,326 lbs. e per 100 lbs..30		144 96	
			Upon shipment of 70,000 gr. the M. K. Goetz Brewing Co. will be entitled to a rebate of 1/2¢ per gross not only upon this quantity, but also upon the carload shipped on May 27, 1933; all of this in ac- cordance with agreement of June 9th, 1933.			7773 67
			(Balance of Order will follow)			7813 30
			B/L enclosed			

134-4
Bottling

1566

1810

ERDINAND GUTMANN & CO.

CUSH TERMINAL NO. 19, 38TH ST. & 2ND AVE
BROOKLYN, NEW YORKORDER NO. & DATE 12/18/33
REGISTRATION NO.
CONTRACT NO. 6/9/33as of Apr. 1, 1934
INVOICE DATE Jan. 12, 1934
OUR ORDER NO. C5171SOLD
TOM. K. Coats Brewing Co.
St. Joseph
Mo.

SHIPPED TO ABOVE

AND

DESTINATION

DATE SHIPPED 1/12/34

CAR INITIALS AND NO.

HOW SHIPPED AND

ROUTE

TERMS: NET CASH

DATE ON

DATE ON

FROM Brooklyn, N. Y.

PREPAID OR COLLECT

F. O. B.

carload frt. equalized with Chicago

Old Dominion, S. B. Norfolk - N.Y. - Pa - CON at Chicago, Ill.

TERMS: NET CASH DATE ON 2-1-34 FOR PAYMENT NOT TO EXCEED DATE FROM 1-1-34

Package Number	Case Contents	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
54/113	152/200	30,400	GR. DOUBLE LACQUERED "STATISTOR" CROWNS	ET. .19	5776 00	
119/210			ALL ABOVE CROWNS HAVE: LINES: REGULAR COMPOSITION CORE DISCS 9/1" and "STATISTOR" ALUMINUM CENTER SPOT			
			Allowance of difference in freight between New York to St. Joseph and Chicago to St. Joseph - 57,000 lbs. per 100 lbs.	.50	111 84	
			Upon shipment of the above gr. the M. K. Coats Brewing Co. will be entitled to a rebate of 1/2% per gross not only upon this quantity, but also upon the carload shipped on May 27, 1933; all of this in accordance with agreement of June 9, 1933			5664 76
			B/L enclosed			499 65
						5167 11

FOR CUSTOMER'S USE ONLY

REGISTER NO.

VOUCHER NO.

P. O. D. CHECKED

TERMS APPROVED

PRICE APPROVED

CALCULATIONS CHECKED

TRANSPORTATION

PRESENT BILL NO.

AMOUNT

MATERIAL RECEIVED

DATE SIGNATURE
SATISFACTORY AND APPROVED

TITLE

ADJUSTMENTS

ADDRESS NO. DISTRIBUTION

REMARKS

FINAL APPROVAL

RECEIVED
JAN 15 1934
12/11
12/12
12/13
12/14
12/15
12/16
12/17
12/18
12/19
12/20
12/21
12/22
12/23
12/24
12/25
12/26
12/27
12/28
12/29
12/30
12/31

1567

1811

FERDINAND GUTMANN & CO.BUSH TERMINAL No. 19, 39TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

ORDER NO. & DATE

REQUISITION NO.

CONTRACT NO. 6/6/34

INVOICE DATE May 21, 1934
OUR ORDER NO. C-3255SOLD
TOM. K. Goets Brewing Co.
St. Joseph
Mo.SHIPPED TO
AND
DESTINATION Above
DATE SHIPPED 5/21/34CAR INITIALS AND NO.
HOW SHIPPED AND
ROUTEOld Dom. S/S-Newport News-C&O-Pa-C.G.N. at Chicago
TERMS: NET CASH 30 DAYS 2% PER PAYMENT WITHIN TEN DAYS FROM INVOICE DATEFROM Brooklyn, N. Y. PREPAID OR COLLECT? Collect
P. O. N. New York, N. Y.
frt. equalized with Chicago

FOR CUSTOMER'S USE ONLY 4/34

REGISTERED NO.	VOUCHER NO.
P. O. D. CHECKED	
TERMS APPROVED	PRICE APPROVED
CALCULATION CHECKED	
TRANSPORTATION	
FREIGHT BILL NO.	AMOUNT
MATERIAL RECEIVED	
DATE	SIGNATURE
SATISFACTORY AND APPROVED	TITLE
ADJUSTMENTS	
ACCOUNTING DISTRIBUTION	
ADMITTED	FINAL APPROVAL

Package Numbers	Cases Contents	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
7263 1/130	150/200	30,000	gr. DOUBLE LACQUERED CROWNS	gr .22	6600 00	
			"STATSTUK" ALUMINUM CENTER SPOT AND COMPOSITION CORK			
			Allowance of difference in freight between Chicago and St. Joseph and Brooklyn and St. Joseph - 37,548 lbs. @ per 100 lbs	.29	108 89	
			B/L ENCLOSED			6491 11 1298- 6361 29

1568
1812

FERDINAND GUTMANN & CO.

BUSH TERMINAL NO. 19, 30TH ST. & 2ND AVE.
BROOKLYN, NEW YORK

ORDER NO. & DATE 11/5/34
INVOICE NO.
CONTRACT NO. 4/5/34

INVOICE DATE Nov. 6, 1934
OUR ORDER NO. C-3411

SOLD
TO

M. K. Goetz Brewing Co.
St. Joseph
Mo.

SHIPPED TO
AND
DESTINATION Above
DATE SHIPPED 11/6/34

CAR INITIALS AND NO.
HOW SHIPPED AND
ROUTE

Old Dem. to Norfolk, N.A.W. Pa., C.G.W. at Chicago
TERMS: NET CASH 30 DAYS OR 2% FOR PAYMENT WITHIN THE SAME FROM INVOICE DATE

FROM Brooklyn, N. Y.

P.O.D. New York, N. Y.

PREPAID OR COLLECT?

Collect

Freight equalized with Chicago

Package Numbers	Cases Cartons	Quantity	DESCRIPTION	Unit Price	EXTENSION	TOTAL
\$7300 17145	145/200	30,000	ST. DOUBLE LACQUERED CROWNS "STATIST" ALUMINUM CENTER SPOT AND COMPOSITION CORK	ST. .22	6600 00	
\$7387 55/75	80/50		ALLOWANCE OF DIFFERENCE IN FREIGHT BETWEEN CHICAGO AND ST. JOSEPH AND BROOKLYN TO ST. JOSEPH - 27,500 lbs.	@ per 100 lbs. .50	112 66	
	145 Cases 80 Cartons					
134-4 Billings			B/L ENCLOSED			
			Lin 27.00			
						6487 34 129 74 6357 60

FOR CUSTOMER'S USE ONLY 442

REGISTER NO. VOUCHER NO.

P. O. B. CHECKED

TERMS APPROVED

PRICE APPROVED

CALCULATIONS CHECKED

TRANSPORTATION

FREIGHT BILL NO.

AMOUNT

MATERIAL RECEIVED

DATE

SIGNATURE

SATISFACTORY AND APPROVED

ADJUSTMENT

ACCOUNTING DISTRIBUTION

AUDITED

FINAL APPROVAL

[fol. 1813] DEFENDANT'S EXHIBIT VVV

(Letterhead of)

Goetz Company, St. Joseph, Mo.,

August 22, 1928.

Ferdinand Gutmann Co., Bush Terminal #19, 39th St. & 2nd Ave., Brooklyn, N. Y.

GENTLEMEN:

We have to-day made further test with the aluminum center crowns you sent us. We took 500 crowns which had gone through our shaker, wherein the spots seemed securely fastened and put them in an Adriance Crowner and run the machine for ten minutes without crowning any bottles, in order to ascertain what effect the agitation in hopper would have on discs.

After removing same from machine we found three dozen crowns that the discs came off entirely and fully fifty percent of the rest were loose and hanging at one point only.

You are no doubt already aware that the discs falling off of crowns would choke up crowner chute and stop the operation of the crowner.

Yours very truly, M. K. Goetz Brewing Co., (Signed)
A. N. Ketterer, Supt. Btl. Dept.

ANK/ELA.

[fol. 1814] (Letterhead of)

M. K. Goetz Brewing Co., St. Joseph, Mo.

August 23, 1928.

Ferdinand Gutmann & Co., Bush Terminal No. 19, 39th St. & 2nd Ave., Brooklyn, N. Y.

GENTLEMEN:

On my return I found your letter of August 13th and also that it has been taken care of and that you received the required information as to our requirements, also that you should ship on September 1st a car consisting of one half regular cork disc crowns and one half of aluminum centered crowns. This was quite correct before we received and tried

out the case of aluminum centered caps which you sent as a trial lot. It is extremely fortunate that this sample lot was shipped now before you proceeded further with the making of more caps like that.

Mr. Ketterer wrote you at once on the 21st and again on the 22nd and in these letters informed you very thoroughly and correctly as to the results we had with these aluminum centered crowns.

In order to call your attention to the defects at once the following nightletters were sent to you on Tuesday and Wednesday evenings:

August 21st "Aluminum center crowns not usable because many aluminum discs fall out in crown shaker are sending you some of them letter follows"

[fol. 1815] August 22nd "In using crowns which retained aluminum discs during shaker process more discs were loosened in advance crowner your system of fastening aluminum to cork entirely wrong (stop) furthermore the aluminum itself is much too heavy almost three times as heavy as aluminum used by others Gutmann promised thinner quality"

These wires and letters have no doubt explained to you that these caps (as you are now making them) are absolutely unsatisfactory and the writer sincerely trusts that you at once stopped their further production.

Referring to the 2nd part of the last wire we find the thickness of the aluminum you used entirely too great. So far as we could we calibred it and find it to be about 0.0085", while the aluminum discs Mr. F. Gutmann submitted in his several trial lots calibers ca. 0.0035" only. We even objected to this and in one of Mr. Gutmann's letters to the M. K. Goetz Brewing Co. or to the writer you will find that he agreed that a thinner aluminum must be used. Instead of that the thickness of the aluminum in your trial lot is between 2 and 3 times greater.

Other manufacturers use aluminum of ca. 0.003" thickness and Mr. E. A. Siebel suggested that even this should be and was in fact being reduced somewhat more.

At any rate your aluminum is entirely too heavy and will result in a great many of the discs being cut thru by the edges of the bottles during the crowning process.

The writer incloses 3 Aluminum discs, one of the smaller ones with several holes punched into it is one of the ones you [fol. 1816] sent now, the other small one from a Bamberger Kraus crown. The large one is from one of the crowns submitted by your Mr. Gütman, in one of the several test lots of several months ago.

By closely examining these discs you will find that the thickness of your last lot is entirely too great.

The result with this sample lot leaves the matter as it was several months ago and we are very much disappointed indeed and await your explanation and further advices in the premises at the earliest possible date.

In your letter of the 14th in reply to the writer's letter of the 11th you show deep concern in the manner your regular plain cork disc crowns affect the "taste of our products". The writer—during his recent trip—had several occasions to further prove the seriousness of the situation caused by the "plain cork discs".

We were in hopes that the "aluminum centered caps" would change this condition and are still of the opinion that they will do this, but the new condition—created by the unsatisfactory results with your trial lot—is much more than disappointing.

We sincerely trust that you will be enabled to at once remedy the several defects and shortcomings of your aluminum centered crowns and expect to hear from you at once. As we cannot safely use the "regular cork discs" either,—we may be compelled to soon decide on some other means to improve the condition.

Yours very truly, M. K. Goetz Brewing Co., per F. W.
Boldenweck, Supt.

FWB/HLC.

[fol. 1817] P. S.—In reference to the Bamberger & Krause, also to the aluminum centered crowns finished by the C. C. & Seal Co. will say that the discs did not loosen during the crown "shaker" period nor during the time the crowns were in the hopper of the Adriance crowner.

In fact none of the discs became loose or came off.

1572

DEFENDANT'S EXHIBIT WWW

(Letterhead of)

E. I. du Pont de Nemours & Company, incorporated, Parlin,
New Jersey, U. S. A.

May 12, 1932.

Ferdinand Gutmann & Co., Bush Terminal No. 19, 39th St.
and 2nd Ave., Brooklyn, N. Y.

Attention of Mr. J. B. Eisen

GENTLEMEN:

This will acknowledge the receipt of your letter of May 6th requesting that we send you a sample of our #4620 Thermoplastic Cement, and in accordance with your request we are sending you by prepaid parcel post, without charge, 1-1/2 pint can of this material for trial.

[fol. 1818] This cement may be applied by brushing, dipping, spraying or roller coating. It will be found light in color and deposits a clear, nearly colorless film. After applying the cement to the objects which are to be joined, the film should be allowed to dry from 3 to 20 minutes at room temperature, depending on the material coated, and when the solvents have completely evaporated, the objects should be brought together and heated with a hot press, roll, or flat-iron. An ordinary electric flat-iron will suffice and a temperature of between 130 to 150° C. may be employed with a little pressure. The exact heating time, of course, depends on the conductivity of the material through which the heat must pass to fuse the cement.

In cementing most materials where the cement would be applicable, the heat need be applied only momentarily, and on cooling it will set up quickly and will develop a strong bond between the cemented objects. Materials coated with 4620 Thermoplastic Cement may be stored indefinitely without destroying the adhesive properties of the Cement which is only very slightly tacky and the tackiness will not increase unless it is subjected to temperatures above 50° C. (122° F.). It is a waterproof product and can be used advantageously wherever a non-aqueous cement is required, and will be found to have excellent flexibility and adhesion to a wide range of articles.

Our 4620 Thermoplastic Cement is priced at \$1.80 per gallon in 50 gallon returnable drums, and is also available in 5 gallon cans at \$2.00 per gallon, f. o. b. delivered in Brooklyn.

We hope that your tests with the 4620 Thermoplastic Cement will prove satisfactory and that as a result of them, [fol. 1819] we will be permitted to supply you with this item regularly. As soon as you have had an opportunity to fully demonstrate it, we would appreciate receiving a report from you and if there is any further assistance needed, kindly do not hesitate to call upon us for it.

Yours very truly, J. W. Cleaveland, Eastern Manager Industrial Sales, by H. F. Hall.

HFH:LO.

DEFENDANT'S EXHIBIT XXX

Crown Shipments 1928-1934

	Without Center Spots	With Center Spots	Total
1928	765,717 gross	71,328 gross	843,045 gross
1929	369,154 "	386,689 "	755,843 "
1930	241,585 "	320,748 "	562,333 "
1931	127,556 "	392,480 "	520,036 "
1932	26,550 "	304,801 "	331,351 "
1933	133,948 "	847,834 "	981,782 "
1934	36,288 "	664,101 "	700,389 "

[fol. 1820] DEFENDANT'S EXHIBIT ZZZ

(Letterhead of)

The Crown Cork and Seal Company, Baltimore, U. S. A.

December 10th, 1928.

Ferdinand Gutmann & Co., 39th St. & 2nd Ave., Brooklyn,
New York.

GENTLEMEN:

As requested in yours of the 6th, we are preparing to send you samples of our regular Serax composition disc, and also samples of our Canax composition disc.

1574

We shall be pleased indeed to hear from you further after making the necessary tests.

Very truly yours, (Signed) J. I. Brown.

JIB: G.

(Billhead of)

The Crown Cork and Seal Co., Baltimore, Maryland,
U. S. A.

No. 51281.

12/7/25.

Your order 12/6/28.

Sold to Ferdinand Gutmann & Co., Bush Terminal No.
19, 39th St. & 2nd. Avenue, Brooklyn N. Y.

Attention Mr. Samuel Cohn

5 Gr. Serax Discs

5 Gr. Canax Discs

Samples. No Charge

Acknowledgment only

(Here follow 7 photos, side folios 1821-1827)

1574A

1821

DEFENDANT'S EXHIBIT C C C C

NEW YORK TESTING LABORATORIES

80 WASHINGTON STREET

NEW YORK

BOWLING GREEN 9-5055-6

Analyses - Tests - Inspections

REPORT OF PHYSICAL TESTS

MATERIAL Springs

Ferdinand Gutmann & Co.

SUBMITTED BY 36 to 37th St. & 14th Ave.
Brooklyn, N.Y.

		Compression Test on Springs	
Laboratory Number	X-67555		X-67556
Specimen Number	Heating Plunger Spring		Collecting Drum Spring
Dimensions			
Area sq. in.			
Dimensions after Fracture	Free Ht. 2.7"		Free Ht. 2-3/4"
Fractured Area			
Yield Point, lbs., actual			
Maximum Load, lbs., actual	Deflection Load		Deflection Load
Elongation in inches	to 1-3/4" 614.3 grams or 1 lb. 5.67 oz.		to 2-3/4" 14 lbs. 12 oz.
Yield Point, lbs. per sq. in.			
Tensile Strength, lbs. per sq. in.			
Per cent Elongation in inches			
Per cent Reduction of Area			
Character of Fracture			
Brinell Hardness			
Rockwell Hardness			

67371
United States District Court
Eastern District of New York

Exhibit in evidence

Date

Nov-17-31

67371
Deputy Clerk

Tests by

G. J. Horvitz
Technical Director

Date May 20, 1936.

Witnessed by

BLANK

PAGE

1574 B
1922

ORDER

Eastern District of New York

Exhibit **1111** in evidence

Date *Nov 17/3*

ADDRESS Bush Bldg. #19
Brooklyn, N. Y.

DATE Feb. 17, 1930

TERMS

F. O. B. BROOKLYN, N. Y.

Clark

OUR ORDER NO. _____

SHIPPING INSTRUCTIONS

CUST. ORDER NO.

SALESMAN

Bush Truck

QUANTITY

DESCRIPTION

PRICE

EXTENSION

100

Gross Dry Gingerale; comp cork, for paper spotting

Please paper spot these crowns
and advise us when ready.

CROWN CAP MFG. CO.

x 5694

CROWN CAP MANUFACTURING CO.

201-37TH ST., BROOKLYN, N. Y.

SALES COPY

DATE SUBMITTED

Sold to Ferdinand Guttman & Co.

Address Bush Building # 19
Brooklyn, N. Y.

DATE Feb. 24, 1930

TERMS

F. O. B. BROOKLYN, N. Y.

OUR OTHER NO.

SHIPPING INSTRUCTIONS

CUST. ORDER NO.

SALESMAN

Truck

QUANTITY

DESCRIPTION

PRICE

EXTENSION

100

Gross Double Lacquer crowns for paper spotting.
Composition cork

48706

CROWN CAP MANUFACTURING CO.

201-37TH ST., BROOKLYN, N. Y.

BLANK

PAGE

15740

DEFENDANT'S EXHIBIT E E E E

1823

SALES COPY

United States District Court

SOLD TO Ferdinand Gutzmann & Co.
 Address Bush Building #19
 Brooklyn, N. Y.

Eastern District of New York
 Exhibit E E E E In evidence

DATE August 6, 1930

TERMS

Date

Not 1/2/31

OUR ORDER NO.	SHIPPING INSTRUCTIONS	P. O. & BROOKLYN, N. Y.	CLERK
	Truck	CUST. ORDER NO.	SALESMAN
		Deputy Clerk	
QUANTITY	DESCRIPTION	PRICE	EXTENSION
200	Gross ALPINE DRY GINGERALE		
400	" MULLEN'S LIME SODA		
Please paper spot these crowns and return to us as quickly as possible.			
CROWN CAP MFG. CO.			
H.V.F.			
C 2418			

CROWN CAP MANUFACTURING CO.
 201-37TH ST., BROOKLYN, N. Y.

SALES COPY

DATE BILLED

SOLD TO Ferdinand Gutzmann & Co.
 Address 39th Street and 2nd Ave.
 Brooklyn, New York

DATE July 10, 1930

TERMS

P. O. & BROOKLYN, N. Y.
OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	Bush Truck		
QUANTITY	DESCRIPTION	PRICE	EXTENSION
50	Gross Double Lacquer crowns.		
Please paper spot these crowns and return to us as soon as possible.			
CROWN CAP MANUFACTURING CO.			
H.F.			
e 2389			

CROWN CAP MANUFACTURING CO.
 201-37TH ST., BROOKLYN, N. Y.

15741

1824

John C. Moore Corporation, Rochester, N. Y. Number and name in margin, made permanent with gummy A.



SALES COPY

DATE DATED

SOLD TO Ferdinand Gutzman & Co.

Address Bush Building #19
Brooklyn, N. Y.

DATE July 8, 1930

TERMS

F. D. S. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	Bush Truck		
QUANTITY	DESCRIPTION	PRICE	EXTENSION
30	Gross Double Lacquer crowns. Please paper spot these crowns and return to us as soon as possible. CROWN CAP MANUFACTURING CO. C 2359 HF		

CROWN CAP MANUFACTURING CO.
201-27th ST., BROOKLYN, N. Y.

SALES COPY

DATE DATED

SOLD TO Ferdinand Gutzman Co.

Address Bush Terminal # 19
Brooklyn, N. Y.

DATE June 9th, 1930

TERMS

F. D. S. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	CUST. ORDER NO.	SALESMAN
	BUSH TRUCK		
QUANTITY	DESCRIPTION	PRICE	EXTENSION
100	Gross Massasoit Gingerale Crowns. Please paper spot these crowns and return to us. Crown Cap Mfg. Co. C 2360 5 copies		

CROWN CAP MANUFACTURING CO.
201-27th ST., BROOKLYN, N. Y.

John C. Moore Corporation, Rochester, N. Y. Number and name in margin, made permanent with gummy A.



1825

SALES COPY

DAVE WALLACE

Sole Importers: **Outman & Co.**

ADDRESS Bush Building #19
Brooklyn, N.Y.

DATE May 7, 1930

TIPOGRAFIA

P. O. B. BROOKLYN, N. Y.

OUR ORDER NO.	SHIPPING INSTRUCTIONS	QUOT. ORDER NO.	SALESMAN
	BUSH TRUCK		
QUANTITY	DESCRIPTION	PRICE	EXTENSION
1000	<p>Gross Chapman's Old Kibby Gingerale crowns</p> <p>Please paper spot these crowns and return to us.</p> <p>CROWN CAP MANUFACTURING CO.</p> <p>HP</p> <p>X1137</p>		

CROWN CAP MANUFACTURING CO.
201-37TH ST., BROOKLYN, N. Y.

DATE BILLED

~~SECRET~~
ORDER.

Sold to Ferdinand Guttman & Co.

ADDRESS Bush Bulldign #19
Brooklyn, N. Y.

DATE April 5, 1930

TERMS

F. O. B. BROOKLYN, N. Y.

DATE April 9, 1960		P. O. BOX 100000		SALESMAN	
OUR ORDER NO.		SHIPPING INSTRUCTIONS		CUST. ORDER NO.	
QUANTITY		DESCRIPTION		PRICE EXTENSION	
100		Gross Cascade Gingerale to be paper spotted.			
		CROWN CAP MFG. CO.			
		X 8771			

CROWN CAP MANUFACTURING CO.
201-57TH ST., BROOKLYN, N. Y.

15741

1826

John C. Moore Corporation, Brooklyn, N. Y. Please send orders to them, not to us, please.

DATE BILLED

SALES COPY
ORDER

SOLD TO Bush Building #19
ADDRESS Ferdinand Guttman
Brooklyn, N. Y.
DATE March 28, 1930 **TERMS**

OUR ORDER NO.	SHIPPING INSTRUCTIONS	F. C. S. BROOKLYN, N. Y.	
QUANTITY	DESCRIPTION	CUST. ORDER NO.	SALESMAN
1065	Gross NEW ENGLAND DRY Crowns. Comp. Cork. Please paper spot this lot for us. Kindly do not stencil cases when returning them to us. CROWN CAP MFG. CO.		

X 8758

CROWN CAP MANUFACTURING CO.
201-27th ST., BROOKLYN, N. Y.

John C. Moore Corporation, Brooklyn, N. Y. Please send orders to them, not to us, please.

DATE BILLED

SALES COPY

SOLD TO Ferdinand Guttman & Co.
ADDRESS Bush Building #19
Brooklyn, N. Y.
DATE October 2, 1930 **TERMS**

OUR ORDER NO.	SHIPPING INSTRUCTIONS	F. C. S. BROOKLYN, N. Y.	
QUANTITY	DESCRIPTION	CUST. ORDER NO.	SALESMAN
200	Gross Double Lacquer, Please insert paper spot in these crowns and return to us as quickly as possible. Crown Cap Mfg. Co.		

X 9713

CROWN CAP MANUFACTURING CO.
201-27th ST., BROOKLYN, N. Y.

15746

1827

PURCHASE ORDER
orThis number must appear on all
invoicing

CROWN CAP MFG. CO., Inc.

201 - 37th Street, Brooklyn, N. Y.

No 226

Ferdinand Guttman Co.

Bush Building #19

Brooklyn, New York

Date Mar. 3

Ship

Terms

Please paper spot the following crowns to be delivered to
you:

Gross Double Lacquer

X9330

Crown Cap Manufacturing Co., Inc.

By

All orders must be signed

(OVER)

PURCHASE ORDER
orThis number must appear on all
invoicing

CROWN CAP MFG. CO., Inc.

201 - 37th Street Brooklyn, N. Y.

No 683

To

Ferdinand Guttman Co.

Bush Building #19

Brooklyn, New York

Date June 27

Ship

Terms

Please insert paper spots and return to us

400 Gross Mullen's Lime Soda X9546
200 Gross Double Lacquer
200 Gross Pale Dry Gingerale X9547

Crown Cap Manufacturing Co., Inc.

By

All orders must be signed

(OVER)

BLANK

PAGE

1575

[fols. 1828-1829] DEFENDANT'S EXHIBIT FFFF

(Letterhead of)

Crown Cap Manufacturing Co., 201 Thirty-Seventh Street,
Brooklyn, N. Y.

April the 23rd, 1929.

Ferdinand Guttman & Co., Bush Terminal #19, Brooklyn,
New York.

GENTLEMEN:

Please enter our order for, Tin Foiling approximately
1,000 gross of decorated composition cork crowns, which
we will have ready to deliver to you in about a week.

Very truly yours, Crown Cap Manufacturing Co.,
W. M. Fries.

WF:Q.

BLANK

PAGE

1576

BA-442-6M-9-3-18.

ALL AGREEMENTS ARE CONTINGENT UPON STRIPS, ACCIDENTS AND OTHER DAMAGES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

Nº 16764

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH.

S. O. No. 2606

NEW YORK, N. Y. Nov. 20, 1917.

As of Nov. 30, 1917.

SOLD TO Kalak Water Co.,

25 City Hall Place, New York City

YOUR ORDER No. Expired SHIPPED VIA Koh

TERMS—NO CASH, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO INST. DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REBATES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 90 DAYS AFTER RECEIPT OF GOODS.

2051 Gross Dec. H. G. Crows

\$4.739

971

97 +

Light Center Tinfoil #22022

United States District Court

Eastern District of New York

Exhibit G & G Evidence

Date Nov 17 1917

Clerk
Deputy Clerk

ON
Surrender
EXPIRED FUTURE DELIVERY ORDER
NOV 30 1917

ON CROWN PURCHASES BY BOTTLETS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE, THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

BA-442-6M-9-3-18.

ALL AGREEMENTS ARE CONTINGENT UPON STRIPS, ACCIDENTS AND OTHER DAMAGES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

Nº 16639

The Crown Cork and Seal Company,

OF BALTIMORE.

NEW YORK BRANCH.

204 E. 23rd STREET

S. O. No. 2368

NEW YORK, N. Y. Oct. 29, 1917.

As of Aug. 31, 1917.

SOLD TO Kalak Water Company

23 City Hall Place, New York City.

YOUR ORDER No. Exp. SHIPPED VIA Koh

TERMS—NO CASH, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO INST. DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REBATES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 90 DAYS AFTER RECEIPT OF GOODS.

35 Gross dec H. Grade Cr.,
Tin foil center light Kalak #22022

0.4126

14

44 ✓

EXPIRED FUTURE DELIVERY ORDER

AUG 31 1917

OFF
Surrender
EXPIRED FUTURE DELIVERY ORDER
AUG 31 1917

We hereby guarantee that the goods covered by this invoice were produced in conformity with the Federal Child Labor Act of September 1st 1916

THE CROWN CORK AND SEAL COMPANY

ON CROWN PURCHASES BY BOTTLETS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE, THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

1831 1577

BA-219-1M-2-2-11

ALL AGREEMENTS ARE CONTINGENT UPON OTHERS, AGREEMENTS AND OTHER CAUSES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

No 15321

The Crown Cork and Seal Company, 387

OF BALTIMORE

New York BRANCH.

S. O. No. 793

August 9th, 1917.

SOLD TO Kalak Water Co., Inc.

19 Bush Terminal, Brooklyn, N.Y.

YOUR ORDER No. Mail SHIPPED VIA Kob.

TERMS—CASH, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO INST. CHARGE. ALL GOODS SHIPPED FROM BRANCH ARE F. O. B. THAT POINT.
SHIPPMENTS SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

187

Gross Dec. H. G. Crowns

@ \$.3826 *

71.55 ✓

#22022

CORRECTED

ON CROWN SHIPMENTS TO BOTTLENE OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE. THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS SHIPPED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

BA-445-1M-2-2-11

ALL AGREEMENTS ARE CONTINGENT UPON OTHERS, AGREEMENTS AND OTHER CAUSES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

No 13545

The Crown Cork and Seal Company,

OF BALTIMORE

NEW YORK BRANCH.

204 E. 20th STREET

S. O. No. 10693

NEW YORK, N. Y. June 1, 1917.

SOLD TO Kalak Water Co.

25-27 City Hall Place, N. Y. C.

YOUR ORDER No. Mail SHIPPED VIA Kob.

TERMS—CASH, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO INST. CHARGE. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
SHIPPMENTS SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

200

Gross Dec. High Grade Cr.

@ .3826

\$ 76 52 ✓

Tin Foil Center Light #22022

ON CROWN PURCHASES BY BOTTLENE OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE. THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

1578 1832

BA-305-3M-3-1-15

ALL AGREEMENTS ARE CONTINGENT UPON OTHERS, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

Nº 13930

289

The Crown Cork and Seal Company,

OF BALTIMORE

NEW YORK BRANCH.

204 E. 20th STREET

S. O. No. 11067

NEW YORK, N. Y., June 18, 1917.

SOLD TO Kalak Water Co., Inc.

23 City Hall Place, N. Y. C.

YOUR ORDER No. Mail SHIPPED VIA Koh.

TERMS—30 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO INSTANT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. D. THAT POINT.
DEBITMENTS SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

200 Gross Dec. High Grade Cr.

@.3826

\$ 76

52

Tin foil Center Light Kalak #22022

Ship to Kalak Water Co., Inc.

19 Bush Terminal,

Bklyn, N. Y.

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE. THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

BA-305-3M-3-1-15

ALL AGREEMENTS ARE CONTINGENT UPON OTHERS, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL.
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

Nº 15381

380

The Crown Cork and Seal Company,

OF BALTIMORE

NEW YORK BRANCH.

204 E. 20th STREET

S. O. No. 793

NEW YORK, N. Y., August 9th 1917.

SOLD TO Kalak Water Co., Inc.

19 Bush Terminal Brooklyn, N.Y.

YOUR ORDER No. Mail SHIPPED VIA Koh.

TERMS—30 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO INSTANT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. D. THAT POINT.
DEBITMENTS SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

187

Gross Dec. H. G. Cr.

@.3826

\$ 71 85

#22022

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE. THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

1833 1579

RA-445-4M-9-5-18

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

Nº 14674

The Crown Cork and Seal Company,

OF BALTIMORE

NEW YORK BRANCH.

234 E. 23rd STREET

S. O. No. 68

NEW YORK, N. Y., July 16th 1917.

SOLD TO Kalak Water Co.

25 City Hall Place New York, City.

YOUR ORDER No. Mail. SHIPPED VIA Koh.

TERMS—30 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO DEDUCT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

200	Gross Dec. H. G. Crowns. #22022	6.4126	\$82 52
-----	---------------------------------	--------	---------

Shipped to Kalak Water Co. Bush. Terminal
Brooklyn, N.Y.

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE, THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

RA-445-4M-9-5-18

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS AND OTHER CAUSES BEYOND OUR CONTROL
NO ALLOWANCE FOR CONSEQUENTIAL DAMAGES WILL BE MADE.

Nº 15876

The Crown Cork and Seal Company,

OF BALTIMORE

NEW YORK BRANCH.

234 E. 23rd STREET

S. O. No. 1296

NEW YORK, N. Y., August 24th 1917.

SOLD TO Kalak Water Co.

23 City Hall Place New York City.

YOUR ORDER No. Expired SHIPPED VIA Koh. Prepaid.

TERMS—30 DAYS, NET. ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO DEDUCT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

187	Gross Dec. H.G. Cr. #22022	6.3826	\$71 55
2007	Gross Dec. H.G. Cr. #22022	6.4126	\$828 09
	Cartage		2 20
			\$901 84

EXPIRED FUTURE DELIVERY ORDER
AUG 31 1917

ON CROWN PURCHASES BY BOTTLERS OF 1,000 GROSS AND OVER DURING YOUR REBATE YEAR, THE PRICE PER GROSS IS SUBJECT TO A REBATE, THE AMOUNT OF THE REBATE, DEPENDING UPON THE TOTAL QUANTITY OF CROWNS PURCHASED, WILL BE PAID OR CREDITED TO HIM FROM THE HOME OFFICE AT BALTIMORE AT THE CLOSE OF THE REBATE YEAR.
PARTICULARS REGARDING THE CROWN REBATE YEAR AND THE QUANTITIES ARE ON THE OTHER SIDE.

ALL AGREEMENTS ARE CONTINGENT UPON STRIKES, ACCIDENTS, AND OTHER CAUSES BEYOND OUR CONTROL
ALL MATERIAL SHIPPED F.O.B. WILMINGTON, DELAWARE

WILMINGTON, DEL. U. S. A. March 31, 1921.

Kalak Water Co.,

23-37 City Hall Place, New York City

Bond Manufacturing Corporation

YOUR ORDER NO.

SHIPPED VIA Penna. R. R. to

Kalak Water Co., Building #19

Bush Terminal 36th St. Station,

Brooklyn, N. Y.

TERMS: 30 DAYS NET

		Gross Plain	BOND-CROWNS	0		
		Gross Lacquered	BOND-CROWNS	0		
		Gross Plain Embossed	BOND-CROWNS	0		
		Gross Lacquered Emb'd	BOND-CROWNS	0		
3 Bxs.	800	Gross Decorated "KALAK"	BOND-CROWNS	0	48 1/2	291 00
						291 00

WITH BEST GRADE NATURAL CORK & TIN CENTERS

67371
United States District Court
Eastern District of New York
Exhibit H. H. H.
In evidence
Date Nov-17-31
Clerk
Deputy Clerk



DA-102-SM-12-2-15

THE PERFORMANCE OF ALL AGREEMENTS ON OUR PART IS CONTINGENT UPON STRIKES, WARS, ACCIDENTS, AND OTHER CAUSES BEYOND OUR CONTROL.



The Crown Cork and Seal Company.

NEW YORK BRANCH.

334-336 W. 44th STREET

S. O. No. 3660

NEW YORK, N. Y. July 23rd, 1920

SOLD TO Kalak Water Co.,
19 Bush Terminal,
New York City
N. Y. County

Remittance must be made within days from date of this invoice to the Payer to Cash Discount.

YOUR ORDER NO. Mail SHIPPED VIA Wagon

TERMS--30 DAYS, NET, OR 2% DISCOUNT FOR CASH IN 10 DAYS.
ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

400 Gross Private Dec. High Grade Crowns .4550

Name Lt. Tin Foil Centre #22022

2/202
This Crown Shipment Applies Against Your
F. D. O. Dated 11/26 for
Open Stock 5000
Private Dec. Crowns which expires 8/30

PAID
OCT 27 1920

United States District
Eastern District of New York
Exhibit in evidence
Date Nov 14
Deputy

We hereby guarantee that the Goods covered by this invoice were produced or manufactured in accordance with the Federal Child Labor Act of Sept. 1st, 1916. THE CROWN CORK AND SEAL COMPANY.

DA-102-SM-12-2-15

THE PERFORMANCE OF ALL AGREEMENTS ON OUR PART IS CONTINGENT UPON STRIKES, WARS, ACCIDENTS, AND OTHER CAUSES BEYOND OUR CONTROL.



The Crown Cork and Seal Company.

OF BALTIMORE.

NEW YORK BRANCH.

334-336 W. 44th STREET

S. O. No. 4736

331

NEW YORK, N. Y. August 31st, 1920

SOLD TO Kalak Water Co.,
27 City Hall Place,
New York City
N. Y. County

Remittance must be made within days from date of this invoice to the Payer to Cash Discount.

YOUR ORDER NO. Phone SHIPPED VIA Rail

TERMS--30 DAYS, NET, OR 2% DISCOUNT FOR CASH IN 10 DAYS.
ACCOUNTS NOT PAID WHEN DUE ARE SUBJECT TO SIGHT DRAFT. ALL GOODS SHIPPED FROM NEW YORK ARE F. O. B. THAT POINT.
REMITTANCES SHOULD BE MADE DIRECT TO THE CROWN CORK AND SEAL COMPANY, BALTIMORE, MARYLAND.
CLAIMS FOR SHORTAGE MUST BE MADE WITHIN 30 DAYS AFTER RECEIPT OF GOODS.

1928 Briv..Dec. High Grade Crowns .4550

Three Color Tin Foil #22022

This Crown Shipment Completes Your F. D. O.
Dated 11/26 5000 Gross
Crowns Expiring 8/31

11/10
11/13
11/13

877 24
377 24
5000
2500
2500
2500

We hereby guarantee that the Goods covered by this invoice were produced or manufactured in accordance with the Federal Child Labor Act of Sept. 1st, 1916. THE CROWN CORK AND SEAL COMPANY.

CABLE ADDRESS HANTUG-NEWYORK
TELEPHONE CONNECTIONAll claims must be made
within five days from receipt of goods.

December 16, 1918. 191

Kalak Water Company,

Sold to

Terms 30 days net

Shipped via See below.

Goods shipped at purchaser's risk.

23 - 27 City Hall Place,

City.

402

via

5 cases each 200 gross
1000 gross 3 cedar spec. dec. crowns gro. .44

Kalak as per sample submitted,
specially paraffined natl. cork discs.
inside lacquered.

Case #65700/4

A/C Contract

DEL'D TO BUSH TERMINAL BUILDING #19 BROOKLYN.

OWING TO THE ADVANCE OF RAW MATERIAL
ALL PREVIOUS PRICES ARE SUBJECT TO
CHANGE WITHOUT NOTICE.



United States District Court

Eastern District of New York

Exhibited in evidence

Date Nov-17-31

Act's Clerk

Deputy Clerk

08

SK
Mise

1583

1837

CABLE ADDRESS BANTUS-NEWYORK.
TELEPHONE CONNECTION.

134-140 WEST 29TH STREET,

New York. February 1, 1919

191

All discounts must be made

30 days net, or 1% for cash in 10 days
 No greater cash discount allowed.
 No discount allowed after ten days.

Sold to

Kalak Water Co.,

Terms 30 days net

25 City Hall Place,

Shipped via See Below.

Goods shipped at purchaser's risk.

VIA

5 cases

980

gross 3 color spec dec browns gross 44
 "Kalak" inside lacquered
 specially paraffined natl. cork discs
 4/200 gross cases #67076/79
 1/180 " case #67080
 completes contract
 Deliver to Bush Terminal Building #19,
 Brooklyn

431

204

F. O. B. Bush Terminal

OWING TO THE ADVANCE OF RAW MATERIALS
 ALL PREVIOUS PRICES ARE SUBJECT TO
 CHANGE WITHOUT NOTICE

MAR 14 1919
 PAID

1584

1838

CABLE ADDRESS "NAMTUG" NEW YORK
TELEPHONE CONNECTION

FERDINAND GUTMANN & CO.



YOUR INTERESTS INTEREST US

Sold to

KALAK WATER CO.

25-27 CITY HALL PLACE,

CITY.

Terms 30 days net
Payable in N.Y. Exchange.

Goods shipped at

REMOVED 10

85 FIFTH AVE.

134-140 WEST 29TH STREET,

New York, July 16, 1919.

Shipped to

to Bldg #19 Bush Terminal,

1	case.				
100	gross double lacquered crowns gross 31 1/2			31	00 ✓
	high grade natural cork discs				
	1 case #80655				
	F. O. B. BUSH TERMINAL				
	<i>OKD</i> <i>MAS</i> <i>Ed</i>				
	PAID OCT 10 1919				
	ALL PRICES SUBJECT TO CHANGE WITHOUT NOTICE				
	All claims must be made within five days from receipt of Goods.				

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PAGE

[fol. 1839]

DEFENDANT'S EXHIBIT LLLL

(Letterhead of)

Schwarz Laboratories, Inc.,

Brewery Consultants and Engineers, 202 East 44th Street,
New York

July 24, 1933.

Ferdinand Gutmann & Co., Bush Terminal, Brooklyn, New
York.

Attention Mr. Jesse Gutmann

GENTLEMEN:

With reference to the enclosed report, it is definitely our opinion that there is no difference between the two crowns submitted to us for examination. This statement, of course, does not apply to the methods of manufacture involved in the making of these two crowns; it is quite possible that there may be differences of which we know nothing. Our statement that there is no difference between the two crowns is based on the result obtained in the practical test noted on the report.

On completion of the test these samples were examined and tasted by three individual chemists and brewing technologists, who had no knowledge of the question involved. It was their definite opinion in each instance that there was no difference in the appearance of the two crowns involved, nor was there any difference in the taste, odor, or appearance of the beer.

[fol. 1840] We sincerely hope that these tests give you the desired information, but if you have any further inquiries please be assured that these will receive our prompt attention.

Always at your service,

Schwarz Laboratories, Inc., (Signed) Herbert A.
Schwarz.

HAS:RCG.

Encs.

1586

(Letterhead of)

Schwarz Laboratories, Inc.

Report No. 212967/8

Report of Analysis

The Sample of Crowns

Received 7/6/33

Marked

Has been examined with the following results:

All bottles contained the same beer. Capped with the crowns as indicated below. Pasteurized in an inverted position. After pasteurization, part of the bottles was held in the inverted position and part in an upright position for 14 days.

Respectfully submitted, Schwarz Laboratories, Inc.,
W. S. H. (Seal.)

To Ferdinand Gutmann & Co., 39th St. & 2nd Ave., Brooklyn, New York.

New York July 24, 1933.

[fol. 1841]

Ferdinand Gutmann & Co.

July 24, 1933.

	Appearance at beginning	Appearance at end	Odor	Taste	Condition of Crown	Sediment
Blank Beer	Brilliant	Brilliant	Normal	Pure		None
Beer with Gerst cap upright	Brilliant	Brilliant	Normal	Pure	No apparent change. No discoloration. No softening.	None
Beer with Gerst cap inverted	Brilliant	Brilliant	Normal	Pure	No apparent change. No discoloration. No softening.	None
Beer with Utica cap Upright	Brilliant	Brilliant	Normal	Pure	No apparent change. No discoloration. No softening.	None
Beer with Utica cap Inverted	Brilliant	Brilliant	Normal	Pure	No apparent change. No discoloration. No softening.	None

Respectfully submitted,
Schwarz Laboratories, Inc.
WSH

(Here follows 1 photo, side folio 1842)

1586A
1842

DEFENDANT'S EXHIBIT M M M



E. I. DU PONT DE NEMOURS & COMPANY

CHEMICAL PRODUCTS

PARLIN, N. J.,

SOLD TO

FERDINAND GUTMANN & CO

BUSH TERM 19
39TH ST & 2ND AVE
BROOKLYN NY

DATE K 4/5/33 NO. 61708
SHIPPED TO
SAME
DESTINATION
1-10-30
TERMS:

M. O.	C31018	CUSTOMER'S ORDER NO.	3/31	DATE SHIPPED	4/4/33	SHIP TO	GLENN 594
SHIPPED FROM	01	DATE SHIPPED	4/4/33	SHIP TO	GLENN 594		
VIA	RR	F.O.B.	DE/0	OFFICE	10 66	BUSINESS	31

1 GAL 4620 THERMOPLASTIC CEMENT

15 2.00

2.00

5 GAL CAN PRICE

United States District Court
Eastern District of New York
of Exhibit m.m.m. in evidence
Date Nov 14/31

1 BOX 104

Clerk
Deputy Clerk

APR 17 1933
11411

Salvage Expense
Expense

PLEASE REMIT TO TREASURER'S OFFICE, WILMINGTON, DELAWARE. INTEREST CHARGED ON ALL BILLS NOT PAID AT MATURITY.
READ IMPORTANT NOTICE ON REVERSE SIDE
BY PRIOR SETTLEMENT OF CONVEYMENT BY A CHECK PAYABLE AT PAR THROUGH FEDERAL RESERVE SYSTEM

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PAGE

[fol. 1843] DEFENDANT'S EXHIBIT 0000

Defendant's Interrogatories to Plaintiff and Plaintiff's
Answers Thereto

Q. 1. What Claims of each of the patents in suit does plaintiff allege defendant has infringed?

Ans. See Plaintiff's Bill of Particulars.

Q. 2. When was the amalgamation of Crown Cork & Seal of Baltimore City with New Process Cork Co., Inc. effected?

Ans. The Crown Cork and Seal Company of Baltimore City did not amalgamate with New Process Cork Co., Inc. The legal steps were as follows: A New York corporation known as the N. Y. Improved Patents Corporation purchased the assets of The Crown Cork and Seal Company of Baltimore City; thereafter the New Process Cork Co., Inc., and N. Y. Improved Patents Corporation consolidated, forming Crown Cork & Seal Company, Inc., Certificate of Consolidation was filed December 19th, 1927 with the Secretary of State at Albany, New York.

Q. 3. When was the present plaintiff incorporated?

Ans. December 19, 1927.

Q. 4. Were any officers of the plaintiff corporation officers of plaintiff's predecessor, Crown Cork & Seal Company of Baltimore City?

Ans. Yes.

Q. 5. If the answer is yes, give their names?

Ans. F. Erwin Fusting, Edward J. Costa.

Q. 6. Is Wm. Vinson an officer of the plaintiff company?

Ans. Yes.

Q. 7. If so, what office does he hold and what are his duties?

Ans. Vice-President, connected with sales.

Q. 8. Upon what date or dates were the licenses mentioned in the Bill of Complaint and Reply made?

Ans. Attached hereto is a list of the licensees with the [fol. 1844] dates of the license agreements.

Q. 9. Have the terms of the License Agreements since been changed or modified?

Ans. Yes.

Q. 10. In what respects and when?

Ans. The licenses of all licensees, except Truslow & Fulle, were modified by supplemental agreement, copy of which is attached. Further under date of December 19, 1934, Plain-

tiff voluntarily reduced temporarily the royalty terms as shown by letter, copy of which is attached.

Q. 11. Who are the licensees referred to in the Bill of Complaint and the Reply?

Ans. See attached list.

Q. 12. Are any of the licensees, named in answer to Int. 11, the subsidiaries of the plaintiff corporation?

Ans. Yes.

Q. 13. If the answer to Int. 12 is "Yes," give the names of such licensees.

Ans. Western Stopper Co., Inc.

Q. 14. If the answer to Int. 12 is "No," does the plaintiff corporation have any financial interest in the business of any of said licensees.

Ans. No.

Q. 15. If the answer to Int. 14 is "Yes," give the names of such licensees.

Ans. None.

Q. 16. Did the plaintiff corporation authorize the publication of the advertisements in magazines and trade papers as follows:

Western Brewer	p.	Aug. 1934 issue
Brewer & Malster	p.	July 1934 issue
Brewer & Malster	p.	Aug. 1934 issue
Brewer's Journal (Western Brewer)	p.	July 1934 issue
Modern Brewer	p.	Aug. 1934 issue
The Crown	p.	— — — issue
The Crown	p.	— — — issue
The Crown	p.	— — — issue

[fol. 1845] and in what, if any other trade journals or publications advertisements like those above referred to were authorized?

Ans. The following advertisements were authorized:

Western Brewer	Aug. 1934 issue	Page 19
Brewer & Malster	July 1934 issue	Page 116
Brewer & Malster	Aug. 1934 issue	Page 114
Brewers' Journal (Western Brewer)	July 1934 issue	Page 13
Modern Brewery	Aug. 1934 issue	Inside of back cover.

Substantially corresponding advertisements were also authorized in the following publications in the issues mentioned herein:

American Brewer	July and Aug. 1934 issues
Beverage News	ditto
National Bottlers Gazette	"
National Carbonator and Bot- tler	"
Western Brewery World	"

Any advertisements appearing in the "Crown of Baltimore," which is the Plaintiff's own publication, under Plaintiff's name, were authorized by Plaintiff.

Q. 18. Did the plaintiff corporation cause to be printed and published a pamphlet entitled "Spot Crowns"?

Ans. Yes.

Q. 19. If the answer to Int. 18 is "Yes," when were such pamphlets first distributed to users of crown caps, how many of such pamphlets have been so distributed and to whom generally?

[fol. 1846] Ans. The booklet entitled "Spot Crowns" was first distributed on or about September 21, 1934; it has been distributed to all those companies whose products are represented in the booklet, and, additionally, to representative or principal users of spot crowns. Approximately 2,000 copies have been distributed.

Q. 20. When did plaintiff or its predecessor, Crown Cork & Seal Company of Baltimore City, first make and sell center spot crowns having a facing disk formed of varnished Express, Kraft or other hard paper having a water finish or of a metal foil secured to the cushion disk of the crown by means of gutta percha or any other water insoluble adhesive material extending throughout the entire surface of the center spot?

Ans. About 1917.

Q. 21. Was a strip of center spot material used on the dates given in answer to Int. 20 in which one surface thereof had bonded thereto a coating of gutta percha?

Ans. No.

Q. 22. Did the plaintiff corporation, or its predecessor Crown Cork & Seal Company of Baltimore City, on or

about May 7th, 1927, or prior thereto, make and deliver for use bottle caps or crowns as described in Int. 20?

Ans. Yes.

Q. 23. If the answer to Int. 22 is "Yes," when and to whom and in what quantities were such crowns or caps delivered?

Ans. Metal foil center spot crowns were made and sold prior to May 7, 1927 detailed sales reports are not available. Paper center spot crowns were not sold prior to May 7, 1927 on which date the first shipment was made to Burroughs Bros., Baltimore, Maryland, totaling ten (10) gross.

Q. 24. Were the caps delivered to the parties above named in answer to Int. 23 charged for?

Ans. Yes.

[fol. 1847] Q. 25. Did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, ever use varnished Express or varnished Kraft paper in bottle closures of any kind prior to 1925?

Ans. Yes.

Q. 26. If the answer to Int. 25 is "Yes," state who furnished such paper?

Ans. Irvington Varnish & Insulator Co., Pittsburgh Insulator Co.

Q. 27. When did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, first manufacture crown Bottle caps having a center spot of varnished paper or of a metal foil, which center spot was adhered to the cushion disk by gutta percha, and in which a strip of gutta percha and a strip of facing material were simultaneously fed in a machine for applying the center spot to the cushion disk?

Ans. In 1917 or 1918; no definite date is ascertainable.

Q. 28. Did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, ever manufacture and sell center spot caps in which the center spot disk is secured to the cushion disk by means of a cellulose derivative, cement or adhesive?

Ans. Yes.

Q. 29. If the answer to Int. 28 is "Yes," when were such caps first made and sold?

Ans. June, 1934.

Q. 30. If the answer to Int. 28 is "Yes," in what quantities have such caps been sold to users thereof?

Ans. Large quantities.

Q. 31. When did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, first manufacture and sell a center spot crown with a metal foil facing disk secured to the cushion disk by means of gutta percha?

Ans. About 1917.

[fol. 1848] Q. 32. Over what period of time did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, continue to manufacture and sell such center spot crowns as are referred to in Int. 31?

Ans. From about 1917 to date.

Q. 33. Does any application for Letters Patent of the United States, other than those referred to in the patents in suit filed by the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, or by any employee of said plaintiff or said predecessor, and assigned to the plaintiff or its predecessor, refer to the use of gutta percha for securing center spots of any material, whether varnished paper or a metal foil, to the cushion disk in crown caps?

(Answer refused.)

Q. 34. Does an application by Albin H. Warth executed August 10th, 1926, and assigned to the plaintiff or to plaintiff's predecessor, Crown Cork & Seal Co. of Baltimore City, refer to the use of gutta percha for securing center spots of any material, whether paper or a metal foil, to the cushion disk in crown caps, and will plaintiff authorize the defendant to have access to said application?

Ans. Yes, and is identified as Serial No. 130,631, filed Aug. 21, 1926; Defendant may have access thereto.

Q. 35. Are any records of plaintiff's predecessor, Crown Cork & Seal Co. of Baltimore City, relating to center spot crowns, available to the plaintiff corporation, and what period of time do such records cover?

Ans. Incomplete records from 1917 to date are available.

Q. 36. For how long has Albin H. Warth been employed by the plaintiff corporation and its predecessor, Crown [fol. 1849] Cork & Seal Co. of Baltimore City, and what have been his duties?

Ans. Employed on May 17, 1916; he has been Chemical Director since that date.

Q. 37. When did the plaintiff corporation, or its predecessor Crown Cork & Seal Co. of Baltimore City, first deliver center spot crown caps in which gutta percha was used to affix the facing disk to the cushion disk of a cap?

Ans. About 1917.

Q. 38. To whom were such crown caps delivered?

Ans. No information available.

Q. 39. Has plaintiff corporation, since August 8th, 1933, made center spot caps in the following manner:

Depositing a heat fusible cement in a metal shell.

Subjecting said shell and cement to heat.

Depositing a cushion disk within said shell upon said adhesive.

Subjecting the exposed surface of the cushion disk to heat.

Cutting a facing disk from a strip of material having heat fusible, cementitious material applied to the face thereof presented toward the cushion disk.

Applying pressure to said facing disk, said cushion disk and said shell without the presence of heat and until the adhesive has set.

Ans. No.

Q. 40. Has there been any adjudication of any one of the six patents in suit?

Ans. No.

Q. 41. If the answer to Int. 40 is "Yes," state the names of the parties and the Court in which such adjudication was held?

[fol. 1850] Q. 42. Did the plaintiff corporation or anybody for and on behalf of, or for the benefit of the plaintiff corporation, acquire any interest in the Johnson patent prior to December 20th, 1933?

Ans. Yes.

List of Licensees Referred to in Bill of Complaint and Reply and Furnished in
Response to Defendant's Interrogatories 8 and 11

Name	Address	Date Agreement Signed
Ajax Bottle Cap Corporation.....	1226 Flushing Ave., Brooklyn, N. Y.	Dec. 17, 1934
Arco Crown Cork & Cap Co., Inc.....	21 Spruce St. or 120 Broadway, New York, N. Y.	Jan. 19, 1934
Armstrong Cork Company.....	Lancaster, Pa.	June 2, 1933
Atlas Tack Corporation.....	Fairhaven, Mass.	July 1, 1933
Bamberger, Kraus & Co.....	401 Amberson Ave., Pittsburgh, Pa.	May 19, 1933
Bond Manufacturing Corp., Inc.....	Wilmington, Delaware.	May 15, 1933
Carvin Bottle Cap Corp.....	410 Morgan Ave., Brooklyn, N. Y.	July 7, 1933
Chicago Crown Company.....	4615 Arthington St., Chicago, Ill.	Nov. 10, 1933
Consolidated Cork Company.....	49 Bogart St., Brooklyn, N. Y.	May 16, 1933
Hoosier Crown Corporation.....	Crawfordsville, Ind.	July 18, 1933
W. H. Hutchinson and Son, Inc.....	1031 N. Cicero Ave., Chicago, Ill.	May 24, 1933
Mundet Cork Corp.....	65 S. 11th St., Brooklyn, N. Y.	May 23, 1933
Reading Bottle Crown Co.....	329 Pearl St., Reading, Pa.	June 14, 1933
Universal Metal Goods Co.....	10300 Corliss Ave., Chicago, Ill.	July 17, 1933
Western Stopper Company, Inc.....	25th & Potrero Ave., San Francisco, Cal.	May 25, 1933
Truslow & Fulle, Inc.....	42 Wilson St., Brooklyn, New York.	Jan. 22, 1934

[fol. 1850a] Copy of Letter Modifying Agreement Forwarded to all Licensees on December 19, 1934, and Furnished in Response to Defendant's Interrogatory 10

December 19th, 1934.

GENTLEMEN:

Referring to the Crown Seal Agreement dated the — day of —, 193—, and the Supplemental Agreement dated the 28th day of September, 1934, this is to advise that until further notice to you and beginning January 2nd, 1935, we hereby voluntarily agree to accept as complete payment for the royalties specified by Paragraph 3 of the Supplemental Agreement, a royalty at the rate of one-quarter of a cent ($\frac{1}{4}$ of 1¢) per gross.

In making this offer, we specifically reserve the right to restore on ten (10) days written notice to you the existing royalty rates as specified in said Paragraph (3) or any rates not exceeding the same.

If this offer, subject to the reservation specified, is acceptable to you, will you please so indicate by your signature at the bottom of this letter and return the same to us, retaining the signed carbon copy herewith.

Yours very truly, Crown Cork & Seal Company, Inc.,
Licensor, by (Signed) F. E. Fusting, Vice-President.

Accepted: December —, 1934. — —, Licensee,
by — —.

[fol. 1851] Copy of Supplemental Crown Seal Agreement
Furnished in Response to Defendant's Interrogatory 10

Crown Seal Agreement

(Supplemental)

Supplemental Agreement

This Agreement, made at New York, New York, this — day of September, 1934, between Crown Cork & Seal Company, Inc., a New York corporation, hereinafter termed "Licensor," and — —, a — — corporation, hereinafter termed "Licensee".

Witnesseth: That

Whereas, the parties hereto have heretofore entered into a license agreement relating to the manufacture and sale of crown seals dated the — day of —, 1933, and

Whereas, the parties mutually desire to modify said agreement as hereinafter provided.

Now, therefore, in consideration of the premises and of other good and valuable considerations, receipt of which [fol. 1852] is mutually acknowledged, the parties hereto agree that said agreement is from the date hereof modified as follows:

1. Paragraph 3 is amended by changing the period at the end thereof to a comma and adding the following:

"provided, Licensee desires such Letters Patent added to the Schedules A and B. And it is agreed that no additions shall be made to Schedules A and B without specific consent in writing by Licensee. Licensor shall give notice in writing to Licensee of any patents which Licensor proposes to add to Schedules A or B, and Licensee shall have thirty (30) days from the date of such notice within which to signify

whether or not it desires to have such further patents added to Schedules A or B."

2. Paragraph 4 is amended by adding thereto the following:

"Licensor agrees not to quote to the trade any amended or altered minimum prices until the expiration of fourteen (14) days following a written notice to Licensee of such amended or altered prices. And it is further agreed that when no minimum price is established by Licensor, after receipt of a request from Licensee for the establishment of such minimum prices, and Licensee shall proceed to enter into contracts for the sale of articles, the prices of which are not specified by Schedule C, then upon any subsequent [fol. 1853] fixing of minimum prices by Licensor, Licensee shall be free to fill all contracts for such articles previously entered into at the prices therein specified. If Licensor shall deliberately not establish a minimum price within one (1) year of the receipt of request from Licensee, the item shall remain unrestricted as to prices thereafter provided that, should Licensor fail to so establish a minimum price for any particular type, size, construction or embodiment of crown seals upon the request of any Licensee other than this Licensee, then this Licensee shall likewise be free to sell any such crown seals without price restriction."

3. Paragraph 7 is cancelled and the following paragraph is substituted therefor:

"Licensee agrees to pay to Licensor a royalty at the rate of three quarters of a cent ($\frac{3}{4}$ of 1¢) per gross on all net sales of crown seals manufactured and shipped hereunder when the price fixed for the particular type (paper, aluminum, tin) spot crowns by Schedule 'C' under the heading 'Base Sales Prices—Two Color Composition Disc Crowns With Spots As Indicated' for shipments of 30,000 gross (car load lots) shall be twenty cents (20¢) or over, and a royalty of one-half cent ($\frac{1}{2}$ of 1¢) per gross on all such sales when the price fixed by Schedule "C" under the same heading for such shipments shall be under twenty cents (20¢) per gross, [fol. 1854] the royalty to be calculated on the net sales reported as provided for in Paragraph 6 and to be paid to the Licensor when rendering said reports. The price fixed by Schedule "C" for shipments of 30,000 gross lots shall deter-

mine the rate of royalty, regardless of the price to particular classes of consumers, i. e., small consumers or large (300,000 gross per year or more) consumers. Royalties shall be calculated separately on each type of spot (e. g., aluminum, paper, tin).

4. Paragraph 9 of the agreement is amended by inserting in line 12 the word "promptly" before "with."

5. Paragraph 11 is amended by cancelling in line 18 the word "mailing" and substituting "receipt."

6. Paragraph 15 (b) is amended by cancelling the last clause "whether this license thereafter continue in force or not" and substituting:

"so long as this license shall continue in force. And it is agreed that upon termination of this license, Licensee shall be in the same position, insofar, as its rights to question validity or scope of any of the patents is concerned, as though the license had never been made."

7. Substitute for Schedules "A" and "B" the following:
[fol. 1855] Schedule "A"

No. 1,899,782, Warth, February 28, 1933

Schedule "B"

No. 1,339,066, McManus, May 4, 1920;

No. 1,867,637, Warth, July 19, 1932;

No. 1,899,783, Warth, February 28, 1933;

No. 1,899,784, Warth, February 28, 1933;

No. 1,908,498, Warth, May 9, 1933;

Re. No. 19,117, Warth, March 20, 1934;

No. 1,956,481, Warth, April 24, 1934;

No. 1,967,195, Warth, July 17, 1934.

8. It is further agreed that the aforesaid agreement, dated the — day of —, 1933, shall continue to remain in force without change, except as above specified.

Crown Cork & Seal Company, Inc., by — —.

Attest: — —, Secretary. (Seal.)

— —, By — —.

Attest: — —, Secretary. (Seal.)

[fol. 1856]

Agreement

This Agreement, made at New York, New York, this — day of May, 1933, between Crown Cork & Seal Company, Inc., a New York corporation, hereinafter termed "Licensor" and —, a — corporation, hereinafter termed "Licensee"

Witnesseth, That

Whereas, Licensor is engaged in the manufacture and sale of crown seals, and is the owner of certain United States Letters Patent for inventions relating to materials for facing bottle caps and method of making the same as set forth in the Schedule hereunto attached and marked Exhibit A, and is the owner of certain patents and applications for patents on closures and methods of manufacturing closures, as set forth in the schedule hereunto attached and marked Exhibit B;

Whereas, Licensee desires to acquire certain license rights under the Letters Patent in Schedules A and B; and

Whereas, Licensor desires to grant such license rights subject to certain terms and conditions as hereinafter set forth;

Now, Therefore, in consideration of the premises, of the mutual promises hereinafter set forth and of good and valuable consideration the parties hereto have agreed and do hereby agree as follows:

[fol. 1857] 1. Licensor does hereby grant to Licensee a non-exclusive right and license upon the terms and conditions hereinafter set out, in connection with use of material for the facing of crown seals, and the employment of Licensor's improved methods in the manufacture of crown seals:

(a) To manufacture (or have manufactured), for use in crown seals, but not to sell except as part of a crown seal, the materials of Patent No. 1,899,782 of Schedule A; and

(b) Under the patents and applications of Schedule B, to employ the methods thereof in the manufacture of crown seals and to manufacture and sell crown seals covered thereby.

The aforesaid license is to remain in force throughout the United States, its territories and possessions during a

period of time in which there may continue in force any Letters Patent (a) identified in said Schedules A or B; (b) issued upon the application for Letters Patent listed in Schedule B, and (c) issued upon any further or additional inventions or improvements owned by or coming into the possession of Licensor and added to said schedules as hereinafter provided, unless this license is sooner terminated, as hereinafter provided for, provided that Licensee shall at all times observe, perform and abide by the provisos, terms and conditions of this instrument and its covenants and agreements therein set forth and in the event [fol. 1858] of breach by Licensee, notice must be given Licensee by Licensor in order to effect cancellation of this agreement as hereinafter provided.

2. Licensor agrees to add to said Schedules any and all Letters Patent of the United States hereafter owned or controlled by it, or under which it may acquire the right to grant licenses without the payment by Licensor of royalty, provided such patents cover improvements (a) in materials for facing or spotting the cushion disks of crown seals or (b) in materials for adhesively uniting such facing materials to the cushion disks of crown seals or (c) in methods of uniting facing materials to the cushion disks of crown seals. In the event that Licensor acquires the right to grant licenses under patents of the aforesaid character, but must pay royalties or compensation to others for use of such patented inventions, Licensor shall include the same in schedule "C" as above set forth, provided Licensee shall pay to Licensor, in addition to the royalty herein specified, the amounts due from Licensor to others because of Licensee's use of such patented inventions. No such additional royalties shall be payable hereunder, however, if the said Letters Patent referred to in this Paragraph 2 be acquired, or the right to license under them be acquired, by Licensor from any of its officers or employees.

3. Licensor hereby agrees that when it may come to own or control or have the right to grant licenses or sub-licenses under any improvement Letters Patent as defined in Paragraph 2, it will immediately notify Licensee, and Licensee [fol. 1859] shall be immediately entitled to utilize the same upon the same terms and conditions as the Letters Patent now listed in Schedules A and B without payment of additional royalty except as provided in Paragraph 2. The

Licensors will formally include such Letters Patent in the Schedules A and B hereto attached as such license rights accrue to Licensee.

4. It is a limitation and condition of this license, however, that Licensee is licensed and authorized, under the Letters Patent for which this license is granted, to sell the crown seals manufactured hereunder (and upon which royalty is to be paid as a consideration for this license) at prices not less than the minimum prices established by Licensors by current bona fide price quotations to its trade for corresponding crown seals. Licensors shall promptly from time to time advise Licensee of the minimum prices thus established. In case no minimum prices are so established as to any particular type, size, construction or embodiment of crown seals, the Licensee shall request the establishment of a minimum price therefor and if the Licensors fail to do so within 14 days following the receipt of such request, this license shall be without price restriction as to such particular product until the establishment of a minimum price therefor. It is agreed that the present minimum prices are those set forth in Schedule C hereto attached and made part hereof. The minimum prices set forth in Schedule C may be amended or altered from time to time upon fourteen (14) days advance written notice to Licensee.

[fol. 1860] 5. Licensee agrees to keep in the United States, full, true and accurate records and books of account of crown seals manufactured and sold under this license. A duly Certified Public Accountant appointed by Licensors and at its expense, shall have access to said records and books of account at all reasonable times during business hours. If the accountant find that the Licensee's royalty payments and reports have been correct, then the accountant shall so report to Licensors but shall not disclose to Licensors or any one else any information derived from Licensee's books; but if the accountant find any discrepancy between Licensee's books and its reports or royalty payments, then the accountant shall be entitled to report to Licensors such information derived from any source as in the discretion of the accountant may be necessary to advise the Licensors of all facts pertinent to the amount and character of such discrepancies and the reason therefor, and only such information shall be disclosed.

6. Licensee agrees to make monthly reports to Licensor, not later than the 25th day of each month of each year while this license continues in force, setting forth therein the number of crown seals sold hereunder during the preceding calendar month in terms of net sales, i. e., shipped sales without deduction of cash discount but less returns and less cost of freight equalization, and less warehouse differential as set forth in Schedule C, and less defective goods allowances not exceeding one (1) per cent. of shipped sales.

7. Licensee agrees to pay to Licensor a royalty at the rate of five per cent. (5%) of all net sales of crown seals [fol. 1861] manufactured and shipped hereunder, the royalty to be calculated on the net sales reported as provided for in Paragraph 6 and to be paid to the Licensor when rendering said reports.

8. Licensor agrees that it shall be sufficient patent marking to place upon cases containing the licensed crown seals the numbers of the patents appearing in Schedules A and B, and the Licensee agrees so to do.

9. Licensor agrees that it will not grant any license to any other person, firm or corporation engaged in the manufacture and/or sale of crown seals for the manufacture and sale of crown seals under the Letters Patent at any time forming a part of Schedules A or B hereof upon terms more favorable than those herein provided, and Licensee may at its option substitute in this license and terms in any subsequent licenses under said Letters Patent which it believes to be more favorable. In order that Licensee may determine whether other licenses contain more favorable terms, Licensor covenants and agrees to furnish Licensee with a true copy of all licenses granted others for the manufacture or sale of crown seals under said Letters Patent or any of them.

10. Licensor agrees to maintain the Letters Patent under which this license is granted and to protect the same against infringement by taking effective action by suit, license or otherwise within reasonable time upon notice of such infringement.

[fol. 1862] 11. In the event Licensee breach any of the provisions of this agreement on its part to be performed,

Licensors may give notice thereof to Licensee, and in the event said breach be continued, or repeated after such notice, Licensors may cancel the agreement forthwith upon written notice. Licensee shall have the privilege of cancelling this agreement at any time after September thirty, nineteen hundred thirty-four (September 30, 1934) upon thirty (30) days written notice in advance of the date such cancellation is to take effect. Licensee shall have the right to cancel this agreement on thirty (30) days written notice to Licensors at any time prior to September thirty, nineteen hundred thirty-four (September 30, 1934) or thereafter should Licensors lower those sales prices originally established in the attached Schedule C and designated as "Base Sales Prices," provided however that should Licensee fail to give notice of cancellation within fourteen (14) days following the mailing of the notice of the lowering of such prices, the lowered prices shall be deemed to have been accepted by Licensee. Deliveries after cancellation, whether by Licensors or Licensee, on contracts made before cancellation, shall be subject to the specified royalty and shall be billed at not less than the prices of Schedules C as it existed at the date of cancellation, or at the prices of Schedule C as it existed at the date on which the contracts were written, whichever price is lower.

12. So long as this agreement be in effect, Licensee agrees not to contest the validity of any of the patents licensed [fol. 1863] hereunder nor to aid or assist others directly or indirectly in contesting their validity.

13. In the event Licensors bring suit against any third party for infringement of any of the Letters Patent herein licensed, Licensee agrees to assist Licensors by giving any evidence that Licensee may have knowledge of to be used in the prosecution of such suit to the extent to which Licensee is reasonably able, but in no event shall Licensee be required to undertake any expense in connection with such suit.

14. Licensors undertakes and agrees to save Licensee harmless and indemnify it against patent infringement by reason of Licensee's manufacture, sale or use of the articles, or Licensee's practice of the methods, covered by the Letters Patent herein licensed.

15(a) The obligation of Licensee to pay royalty as to any of the Letters Patent herein licensed shall cease and determine upon such Letters Patent being declared invalid, or so limited as not to cover Licensee's manufacture as then carried out, by the Supreme Court of the United States or a lesser court whose decision is not reversed upon appeal or review.

(b) It is agreed that if in a suit by Licensor against an alleged infringer, a court of final jurisdiction or a lower court from whose decision no appeal is taken, shall declare said Letters Patent, or any of them, invalid or limited, then said Letters Patent shall, as between Licensor and Licensee, be interpreted in accordance with the construction given to said Letters Patent in said decision, whether this license thereafter continue in force or not.

[fol. 1864] 16. This agreement and each of the terms thereof shall inure to the benefit of and be binding upon the parties hereto, their successors and subsidiaries. No right of assignment to any third party other than subsidiaries shall attach hereto on the part of either party except upon written approval by the other party.

17. Any notices provided in this agreement shall be served by either party to the other by registered mail addressed to the other party at its last known address.

18. This agreement shall at all times and places be interpreted in accordance with the laws of the State of New York.

19. The Licensor and Licensee agree that all claims or penalties for past infringements committed or alleged to have been committed by the Licensee in respect to the patents contained in Schedules A and B shall be forever waived and cancelled upon the execution of this agreement.

20. It is agreed that, as between Licensor and Licensee, Licensee may procure materials, whether patented or not, for use in crown seals covered by the Letters Patent for which this license is granted, from any sources it may desire, and no royalty other than or additional to that herein provided shall accrue to Licensor from any source of supply of Licensee by reason of such source of supply manufacturing or processing for, or supplying to, Licensee, mate-

rials for use in crown seals covered by any of the Letters Patent under which this license is granted.

[fol. 1865] 21. The Licensor and Licensee agree that as to contracts entered into before May one nineteen hundred thirty-three (May 1, 1933) shipments thereon prior to September thirty nineteen hundred thirty-three (September 30, 1933), shall not be subject to payment of any royalty or to Schedule C, but otherwise shall be subject to the terms of this agreement and shipments thereon after September thirty nineteen hundred thirty-three (September 30, 1933) shall not be subject to Schedule C, but otherwise shall be subject to the terms of this agreement, including the payment of the royalties specified.

22. Any of the rights or obligations granted or undertaken by this agreement may be delegated by Licensee to its subsidiaries owned or controlled by Licensee, but the sharing or delegation of any such right or obligation shall not relieve the sharing or delegating party from performance hereunder.

In Witness Whereof, the parties hereto have caused this agreement to be executed in duplicate for them and in their names by their respective officers thereunto duly authorized, and their corporate seals to be affixed, on the day and year first above written.

Crown Cork & Seal Company, Inc., by Charles E. McManus, Pres.

Attest: J. J. Nagle, Secy., by — — —.

Attest: — — —.

[fol. 1866] ✓ Schedule "A"

No. 1,899,782, Warth, February 28, 1933.

Schedule "B".

No. 1,339,066, McManus, May 4, 1920;
No. 1,788,260, Warth, January 6, 1931;
No. 1,867,637, Warth, July 19, 1932;
No. 1,899,783, Warth, February 28, 1933;
No. 1,899,784, Warth, February 28, 1933.

Application Serial No. 664,410, Warth, filed April 4, 1933,
(Division of Serial No. 159,743, filed January 7, 1927).

Schedule "C"

(A) Base Sales Prices (Per Gross)

Two Color Composition Disc Crowns With Spots as Indicated

These prices apply on single shipments to one customer or plant.

	Paper Spots	Aluminum Spots	Tinfoil Spots
Shipments of less than 200 gross	25½	25½	28½
Shipments of 200 gross or over	24½	24½	27½
" " 400 " " "	24	24	27
" " 1,000 " " "	23½	23½	26½
" " 5,000 " " "	22½	22½	25½
" " 30,000 " (carload lots)	22	22	25

Prices to large consumers

(300,000 gross per year or more).

L. C. L. shipments (any quantity)	22	22	25
C. L. shipments (30,000 gross or more)	21½	21½	24½

Licensor will furnish to Licensee list of customers in the large consumer class as shown by Licensor's records, and changes and additions to this list will be made from time to time, as may be indicated by the records of the Licensor, the Licensees, or both.

[fol. 1867]

(B) Sales Prices for Types of Crowns Other Than Those Specified Under Designation "Base Sales Prices."

Plain (undecorated)	deduct	2¢	per gross from Base Sales Prices						
Double Lacquered	"	1½¢	"	"	"	"	"	"	"
One Color Decorated	"	1¢	"	"	"	"	"	"	"
For each color over two	add	1¢	"	"	to	"	"	"	"
Plain Paper backing	"	1¢	"	"	"	"	"	"	"
Acid-proof paper backing	"	2¢	"	"	"	"	"	"	"
Overall waxing	"	1¢	"	"	"	"	"	"	"
Natural Cork Discs (including paper backing)	"		"	"	"	"	"	"	"
Specially selected grade	"	14¢	"	"	"	"	"	"	"
Standard High Grade	"	10¢	"	"	"	"	"	"	"
Low Grade	"	3¢	"	"	"	"	"	"	"
Aluminum or tinfoil spots with varnish or lacquer coating	"	1¢	"	"	"	"	"	"	"

Sur-charge for Private Decorated Crowns when ordered for production in quantities of:

200 to 399 gross per decoration	add	5¢	"	"	"	"	"	"	"
400 " 999 " " " "	"	1¢	"	"	"	"	"	"	"
1,000 " 4,999 " " " "	"	½¢	"	"	"	"	"	"	"
5,000 gross or over " " "			no sur-charge.						

Terms: 2% discount for payment within ten days—30 days net.

Carload shipments direct from factory to customers to be billed f. o. b. factory point, or with freight equalized with any of the following points: New York City; Chicago, Ill., Philadelphia, Pa., Pittsburgh, Pa., Wilmington, Del., Lancaster, Pa.; Baltimore, Md., San Francisco, Cal.

Carload freight to be allowed on carload shipments to Milwaukee, Wis.

On L. C. L. shipments from factory, branch, warehouse or distributors' points listed below the indicated differentials are to be added to "Base Sales Prices."

Los Angeles, Calif.	1½¢ per gross	Kansas City, Mo.	1¢ per gross
San Francisco, Calif.	1½¢ " "	New Orleans, La.	1¢ " "
Atlanta, Ga.	1½¢ " "	St. Louis, Mo.	½¢ " "
Boston, Mass.	½¢ " "	Cleveland, Ohio	½¢ " "
Cincinnati, Ohio	½¢ " "	Fort Worth, Texas	1½¢ " "
Dallas, Texas	1¢ " "	Memphis, Tenn.	1¢ " "
Detroit, Mich.	½¢ " "	Milwaukee, Wis.	¼¢ " "
Houston, Texas	1¢ " "	Niskayuna, N. Y.	½¢ " "
Jacksonville, Fla.	¾¢ " "	Saltbury, N. C.	1½¢ " "

Licensor will specify differentials for any additional branch or warehouse points upon request of Licensees.

[fol. 1868] DEFENDANT'S EXHIBIT PPPP

Oct. 10th, 1930.

Crown Cork & Seal Co., Baltimore, Md.

Att. Mr. N. Vinson, Vice President, & Genl. Sales Mgr.

MY DEAR MR. VINSON:

I just had confirmation through a very reliable source, of reports which have lately been brought to my attention.

It seems that your Chicago representative has recently advised the trade there that all crown manufacturers have to purchase their aluminum center crowns as well as their composition cork disc supplies from the Crown Cork & Seal Co. of Baltimore.

I believe that your firm will not permit such untruthful statements to be made in the trade, and therefore consider it my duty to bring this to your attention.

With best personal regards, I am,

Cordially yours, Ferdinand Gutmann & Co.

FG:CS.

[fol. 1869] (Letterhead of)

The Crown Cork and Seal Company

Baltimore, U. S. A.

October 13, 1930.

Mr. Ferdinand Gutmann, President, Ferdinand Gutmann & Co., Bush Terminal No. 19, Brooklyn, N. Y.

MY DEAR MR. GUTMANN:

This will acknowledge yours of the 10th and regret very much to learn of the statements attributed to our Chicago representation. In no sense will we permit remarks on the part of our men that might be derogatory to our competitors.

Please be assured that this will be carefully investigated and thanking you very much for bringing this to the writer's attention, we are with all good wishes

Yours very truly, (Signed) W. Vinson, Vice President.

V:m.

[fol. 1870]

Oct. 14th, 1930.

Mr. Wm. Vinson, Crown Cork & Seal Co., Baltimore, Md.

MY DEAR MR. VINSON :

I thank you cordially for your letter of the 13th.

I am very glad that you are investigating the reports which have come to me which I felt convinced were made without knowledge or consent on your, or your firm's part.

With best personal regards, I am,

Cordially yours, Ferdinand Gutmann & Co.

FG:CS.

[fol. 1871] DEFENDANT'S EXHIBIT RRRR

Statement of Warth, Filed Jan. 19, 1931, Approved Jan.
24, 1931.

IN THE UNITED STATES PATENT OFFICE

Interference No. 60,931

ALBIN H. WARTH

v.

LOUVERN G. LANGE

Preliminary Statement of Albin H. Warth

DISTRICT OF COLUMBIA, SS :

Albin H. Warth, being first duly sworn, deposes and says that he is a party to the above entitled interference involving his application, Serial No. 360,895, filed May 5, 1929, and a patent to Louvern G. Lange, No. 1,779,884.

That he conceived the invention defined by the several counts on or about the first day of July, 1915.

That he first disclosed to others the said invention on or about the first day of July, 1915.

That he made first written description of the said invention on or about the first day of July, 1915.

That first drawings of the invention were made on or about the first day of August, 1926.

That the invention was reduced to practice by the manu-
[fol. 1872] facture and use of material of the character de-

fined in each count on or about the first day of June, 1915, at Baltimore, Maryland.

That the material of the character defined in each count has been made in large quantities since June 1, 1915.

Albin H. Warth.

Sworn to and subscribed before me, a Notary Public, this 16th day of Jan., 1931. Catharine S. Wilton,
Notary Public, D. C. (Seal.)

DEFENDANT'S EXHIBIT SSSS
IN THE UNITED STATES PATENT OFFICE
Interference No. 60,931

LANGE
VS.
WARTH

DISTRICT OF COLUMBIA, SS:

John J. Darby, being first duly sworn, deposes and says:

That he is a member of the firm of Cushman, Bryant, Darby and Cushman, attorneys for the party Warth. [fol. 1873] That deponent has been in immediate charge of this interference on behalf of the party Warth and attended the taking of testimony for the party Lange at the office of Messrs. Pennie, Davis, Marvin & Edmonds, in New York City on March 30th, March 31st, and April 1st, 1932.

That prior to March 30th, deponent had orally informed attorneys for Lange that deponent would stipulate the taking of the testimony stenographically instead of directly on the typewriter, provided deponent was furnished each day with a copy of the testimony; that this statement was repeated to attorneys for Lange at the beginning of the taking of testimony on March 30, 1932, whereupon counsel for Lange agreed to do so and stated that in order to do this, he would arrange to have the testimony taken by two stenographers in the employ of Messrs. Pennie, Davis, Marvin & Edmonds, under the supervision of Marie Loftus, a Notary Public who was also in the employ of Messrs. Pennie, Davis, Marvin & Edmonds.

That on both March 30th and March 31st, a copy of the testimony thus far transcribed was furnished deponent in

accordance with this agreement, and that deponent, throughout the taking of testimony, made many personal notes in the interest of the party Warth on said copy of the testimony.

That attorneys for Lange completed taking testimony about noon on April 1st, and informed deponent that no further testimony would be taken on behalf of the party Lange.

That deponent thereupon requested one of the stenographers under the supervision of the Notary, and without [fol. 1874] reference to attorneys for Lange, to add to deponent's copy of the testimony the few pages which had not been transcribed and to mail this copy, with copies of the exhibits, promptly to deponent at his offices in Washington, D. C., and that said stenographer agreed to do this.

That the statements made in deponent's affidavit filed April 5, 1932, as well as in the motion to dissolve, were based largely upon the testimony given by the party Lange, since the party Lange had furnished materials to the Crown Cork & Seal Company during the years in question and had confirmed deponent's suspicions, previously stated to attorneys for Lange, that material made by the party Lange and used for many years by the Crown Cork & Seal Company responded to the single claim in issue.

That when deponent made his affidavit filed with the motion to dissolve this interference, deponent regarded his copy of the testimony which counsel for Lange had agreed to furnish and which the stenographer had promised to forward promptly to deponent, as evidence constructively in the possession of deponent, and, therefore, constituting "proofs available" to the party Warth as set forth in deponent's affidavit.

That since the dissolution of this interference deponent has made repeated efforts to have returned in completed form his copy of the testimony bearing deponent's notes, with copies of the exhibits, but that both the Notary and attorneys for the party Lange decline to return said copy of the testimony in either complete or incomplete form.

That deponent's affidavit in support of the motion to dissolve was based largely upon the testimony, copy of which [fol. 1875] Lange's counsel agreed to furnish deponent; said affidavit was, therefore, made with the understanding by deponent that the agreement entered into would be adhered to and that the Notary or counsel for Lange would return deponent's papers and notes.

That deponent would not have permitted the testimony to be taken by Lange in stenographic form had deponent not been assured of a complete copy of the proceedings at the termination of each day; that a copy of the major portion of the testimony was delivered to deponent pursuant to this agreement, but the same is now retained by counsel for Lange notwithstanding demands made upon him and the Notary that the same be returned.

That deponent believes that the Notary has delivered deponent's copy and personal notes of the testimony to counsel for Lange, although given no authority to do so, and that counsel for Lange have definitely declined to return the same or to furnish any copy of the testimony or copies of the exhibits.

That deponent, therefore, filed the motion to dissolve and the supporting affidavit under the belief that the Lange testimony constituted part of the proofs available to Warth in connection with the question of public use, and that in view of the refusal of counsel for Lange to deliver copy of this testimony to counsel for Warth, deponent's statements in connection with the motion to dissolve were largely in error since such proofs are not, in fact, available to deponent's client because of the refusal of the Notary and attorneys for Lange to return deponent's papers and notes or to furnish a copy of said testimony as stipulated and agreed.

[fol. 1876] That deponent based his affidavit in support of the motion to dissolve largely upon the testimony and admissions by the party Lange.

That the letters attached hereto are copies of correspondence between deponent and the Notary and between deponent and attorneys for Lange.

That deponent did state to attorneys for Lange on or about March 2nd, that deponent felt the subject matter of the claim had probably been in public use, but that prior to the admissions by the party Lange in the course of his testimony, deponent did not feel that he had available any clear proof of such public use.

Further deponent sayeth not.

John J. Darby.

Subscribed and sworn to before me, a Notary Public,
this 20th day of May, 1932. Theresa Buckhantz,
Notary Public, D. C. (Seal.)

[fol. 1877] DEFENDANT'S EXHIBIT UUUU

License Agreement

This agreement entered into this — day of December, 1933, by and between Crown Cork & Seal Company, Inc., a corporation of New York, hereinafter termed first party and Louvern G. Lange of East Rutherford, New Jersey, hereinafter termed second party, witnesseth:

Whereas, first party is the owner of United States Letters Patent, 1,899,782, granted February 28th, 1933 and

Whereas, second party desires to acquire the right to manufacture and sell adhesive coated paper and foil under said patent, and,

Whereas, first party is willing to grant such right subject to the condition that material made under and in accordance with said patent for the center spotting of closure caps shall be sold by second party only to those licensed by first party to manufacture and sell caps.

Now Therefore, in consideration of Ten Dollars (\$10.00) each to the other in hand paid, receipt of which is hereby mutually acknowledged, and in consideration of the mutual agreements herein set forth as well as other good and valuable consideration, the parties hereto agree as follows:

1. First party hereby grants to second party the right to manufacture coated paper and foil under United States Letters Patent 1,899,782, granted February 28th, 1933, provided that when such material shall be sold for the purpose [fol. 1878] of center spotting closure caps, it shall only be sold to persons duly licensed by first party to manufacture and sell caps containing material of the character covered by said patent and also licensed under first party's patents number 1,339,066, granted May 4th, 1920.—1,788,260, granted January 6th, 1932,—1,867,637, granted July 19th, 1932,—1,899,783, granted February 28th, 1933 and 1,889,784, granted February 28th, 1933.

2. Second party covenants that material made and sold under this license shall not be sold to manufacturers of crown seal and/or for center spotting of crown seals, or other center spot closure, except and unless the purchasers of such materials are duly licensed by first party under first party's Patent No. 1,899,782, granted February 28th, 1933 and under the first party's patents mentioned in paragraph numbered (1) supra.

3. First party further grants to second party a free license to manufacture and sell to anyone other than crown seal manufacturers the varnish and adhesive coated paper and foil covered by United States Letters Patent 1,899,782, dated February 28th, 1933, for other than center spotting purposes. By "center spot" as used in this agreement is meant a facing disposed substantially centrally within a cap of less diameter than the diameter of the inner surface which contacts with the top or lip of the vessel to which the cap is applied. By "center spotting" is meant the step of applying a center spot.

[fol. 1879] 4. The aforesaid license is to run for the life of the said patent 1,899,782 unless sooner terminated. The said license shall be terminable by second party upon sixty (60) days notice in writing to the first party and upon termination of the license no estoppel shall exist against second party to contest said patent in any way because of second party's having entered into this license agreement. The license shall be terminable by first party only in the event second party shall fail to live up to the provisions of this agreement or to any of the provisions of separate agreements entered into with first party this — day of December, 1933.

5. This license is non-exclusive and is not assignable, except that second party may permit the Standard Insulation Company, a corporation of New Jersey located in East Rutherford, New Jersey to operate thereunder in second party's place and stead.

Witness: — — — — —, Second Party.

Crown Cork & Seal Company, Inc., First Party, By
— — — — —

Attest: — — — — —, Secretary.

[fol. 1880] License Agreement

This agreement entered into this — day of December, 1933 by and between Crown Cork & Seal Company, Inc., a corporation of New York, hereinafter termed first party and Louvern G. Lange of East Rutherford, New Jersey, hereinafter termed second party, witnesseth:

Whereas, first party has by separate agreement granted to second party a license under United States Letters Patent No. 1,899,782, and

Whereas, the parties hereto are involved in a number of controversies which both parties desire to settle by agreement;

Now Therefore, in consideration of the aforesaid separate license agreement under said Letters Patent, and in consideration of the payment of ten dollars (\$10.00) each to the other in hand paid, receipt of which is hereby mutually acknowledged and other good and valuable considerations, the parties hereto agree as follows:

1. Second party shall take no action in and shall permit to go by default judgment to first party a certain conflict proceeding now pending in the Dominion of Canada and involving first party's application for Canadian patent Serial No. 371,376, and second party's application for Canadian patent Serial No. 364,272; it is agreed that first party shall file a statement of date of invention and upon issuance of an order to second party requiring the latter to file a date of invention the latter shall fail to do so and shall [fol. 1881] permit entry of judgment by virtue of such failure in favor of first party.

2. Second party shall cause his attorneys, Pennie, Davis, Marvin & Edmonds of New York City to deliver to first party forthwith upon the signing of this agreement a complete copy of testimony taken in a certain interference proceeding involving second party's patent No. 1,779,884, including a partial copy bearing notes made by first party's attorneys, and also photostatic copies of all exhibits introduced in evidence; the latter to be prepared at first party's expense. Second party agrees that should his said attorneys decline to deliver the said papers, he will co-operate with first party to force delivery of said papers.

3. Second party agrees to sell and first party agrees to buy from second party the latter's German patent No. 557,780, dated August 27, 1932, for the sum of five hundred and ninety-five (\$595.00) dollars; all necessary papers for formal transfer of title of said patent to first party to be prepared at the expense of first party, and the same to be executed by second party upon tender of the payment of said sum. Second party agrees not to oppose a pending request by first party to inspect the application file of said German patent.

4. Second party shall be given by first party in the Dominion of Canada and Germany rights corresponding to the rights given second party by first party in the United States and subject to the same conditions, including restriction to sale of the material to licensees of first party [fol. 1882] or of its assigns.

Witness: — — — — —, Second Party.

Crown Cork & Seal Company, Inc., by — — —.

Attest: — — —, Secretary.

[fol. 1883] DEFENDANT'S EXHIBIT VVVV

At a stated term of the District Court of the United States in and for the Southern District of New York, held in the United States Court House and Post Office Building, Borough of Manhattan, City and State of New York, this 31st day of January, 1934.

Present: Honorable William Bondy, U. S. District Judge.

E. 72-52

CROWN CORK AND SEAL CO., INC., and ALBIN H. WARTH,
Plaintiffs,

vs.

WILLIAM H. DAVIS, ARBA B. MARVIN, DEAN S. EDMONDS, W. Brown Morton, Merton W. Sage, Willis H. Taylor, Jr., Ernest H. Merchant, Morris D. Jackson, R. Morton Adams, Raymond F. Adams, Leslie B. Young, Marie Loftus, Defendants

Consent Order

This cause having come on to be heard at this Term of Court for the entry of this order, and all parties herein, [fol. 1884] by their respective attorneys, having consented thereto, it is, upon consideration thereof,

Ordered, Adjudged and Decreed:

1. That the sealed envelope containing the original transcript and exhibits of the party Louvern G. Lange, in the

Patent Office Interference #60,931, together with copies of the same, including that portion of a copy of the transcript of the testimony containing pencilled notes by John J. Darby, and stenographic notes of the testimony now under seal in the custody of the clerk of this Court be returned to John F. Neary (or his representative), the solicitor for the Defendants herein.

2. That in accordance with paragraph 2 of the agreement, heretofore entered into by and between Crown Cork and Seal Company, Inc., party of the first part and L. G. Lange, party of the second part, the firm of Pennie, Davis, Marvin & Edmonds, of which certain of the Defendants herein are members, shall deliver forthwith, upon the signing of said agreement, a complete copy of the testimony taken in a certain interference proceeding involving Lange patent #1,779,884, including a partial copy bearing notes made by Crown Cork and Seal Company's attorneys, and also photostatic copies of all exhibits introduced in evidence; the latter to be prepared at the expense of Crown Cork and Seal Company, Plaintiff herein.

[fol. 1885] 3. That this action be and the same is hereby dismissed with prejudice, but without damages or cost to either party.

Wm. Bondy, U. S. District Judge.

Approved as to form and consented to:

Thomas Ewing, Solicitor for Plaintiffs. John F. Neary by C. Di Martino, Solicitor for Defendants.

Envelope described above Received this 1st day February, 1934.

John F. Neary, by C. Di Martino, Solicitor for Defendants.

A True Copy: Charles Weiser, Clerk. (Seal.)

(Here follows 1 photo, side folio 1886)

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PAGE

SPOT CROWNS

ANNOUNCEMENT TO THE BOTTLING AND BREWING INDUSTRIES:

The conclusion of litigation involving spot crown patents (paper, tinfoil and aluminum foil) has resulted in the award to the Crown Cork & Seal Company, Inc. of the following patents:

1,899,782	granted	February 28, 1933
1,899,783	granted	February 28, 1933
1,899,784	granted	February 28, 1933
1,908,498	granted	May . . . 9, 1933

The above patents were issued after the Crown Cork & Seal Company, Inc. had established its priority of invention in an interference proceeding in the United States Patent Office.

The above patents supplement the protection granted under previously issued Crown Cork & Seal Company, Inc. spot crown patents as follows:

1,339,066	granted	May 4, 1920
1,788,360	granted	January 4, 1931
1,867,637	granted	July 19, 1933

These patents grant to Crown Cork & Seal Company, Inc., and its licensees, the exclusive right to manufacture and sell spot crowns (paper, tinfoil or aluminum foil), and the exclusive right to the methods of manufacturing "spot" materials and spot crowns, as described in these patents.

All crown manufacturers have been notified of the issuance of the patents, and they have also been advised that if they desire to manufacture aluminum foil spot, tinfoil spot and paper spot crowns, the Crown Cork & Seal Company, Inc. is prepared to issue licenses granting them the right to manufacture and sell under these patents. Many crown manufacturers have already obtained such licenses.

Spot crowns, as covered by these patents, were developed at very great expense to the Crown Cork & Seal Company, Inc. and while willing to license other crown manufacturers under these patents, it is their intention to rigidly enforce them.

Therefore, the bottling and brewing trades are advised that they should purchase spot crowns either from Crown Cork & Seal Company, Inc., or from other manufacturers licensed under its spot crown patents.

CROWN CORK & SEAL CO. Baltimore Md.

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[fol. 1887] DEFENDANT'S EXHIBIT YYYY

IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

vs.

JOHNSON

Record for Albin H. Warth

Declaration

The case, above referred to, is forwarded to the Examiner of Interferences because it is adjudged to interfere with others, hereafter specified. The question of priority will be determined in conformity with the Rules. The interference will be identified as No. 66201 on or before May 15, 1933, the statement demanded by rule 110 must be sealed up and filed with the subject of invention, and name of party filing it, indorsed on the envelope. The subject-matter involved in the interference is

Count 1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings [fol. 1888] from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads.

Count 2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps, with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads; and then placing the linings in the caps under

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heat and pressure to effect an intimate adhesion between the linings and pads.

Count 3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between [fol. 1889] the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof.

The interference involves your application above identified and a patent, No. 1,852,578, granted April 5, 1932, for Method and Apparatus for Assembling Linings in Receptacle Closure Caps, Serial No. 409,793, filed November 26, 1929, by John A. Johnson, whose post office address is 84-16-86th Street, Woodhaven, N. Y., and whose attorney is John O. Seifert, 277 Broadway, New York, N. Y.

The relation of the counts of the interference to the claims of the respective parties is as follows:

Counts	Warth	Johnson
1	1	28
2	2	29
3	3	30

Counts Compared.

— — —, Examiner, Division 14.

IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

VS.

JOHNSON

The parties hereto, by counsel, stipulate as follows:

(1) That the accompanying affidavits of Frank L. Lloyd, H. Monroe Humason, and Albin H. Warth may be received

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[fol. 1890] in support of the case of the party Warth, with the full force and effect of testimony regularly taken, and that said affidavits may be used by the party Warth on appeal to the Board of Appeals and/or the Court of Customs and Patent Appeals.

(2) That at final hearing the only question to be decided, is whether those portions of the Warth specification of his case in interference (Serial No. 664,410) and which also appeared in the earlier filed applications referred to in the second paragraph of the Warth specification in interference, support any or all of the claims in interference.

(3) That if the Examiner of Interferences or a higher tribunal on appeal determines that said portions of the specification do support the claims or any of them, the party Warth shall be entitled to and shall receive an award of priority as to such claims. And on the contrary, if in the event of a finding that such portions of the application do not support the claims in interference or any of them, the party Johnson shall be entitled to, and shall receive an award of priority.

John O. Seifert, Attorney for Johnson. Cushman,
Darby & Cushman, Attorneys for Warth.

March 16, 1934.

[fol. 1891] IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

VS.

JOHNSON

Affidavit

STATE OF MARYLAND,
City of Baltimore, ss:

Albin H. Warth, being first duly sworn, deposes and says:

I am the Albin H. Warth who filed on January 7, 1927, an application Serial No. 159,743, entitled "Process of Pro-

ducing Closures," and whose application Serial No. 664,410, filed April 4, 1923, is involved in the above entitled interference.

For approximately seventeen (17) years I have been employed by the Crown Cork & Seal Company, Inc., and its predecessor in Baltimore, Maryland, and for the same period of time have been continuously engaged in technical work connected with the manufacture of caps of the "crown" type.

"Crown" caps may be roughly divided into two classes, namely, (1) "center spot" caps in which a small disc facing of less diameter than the cork disc or cushion is adhesively united to the cushion disc, and (2) caps in which the cushion disc is left entirely exposed.

[fol. 1892] In the manufacture of center spot caps, it has always been the practice first to manufacture what is known as an "assembled crown." That is to say, by a suitable machine the metal shell has inserted and adhesively fixed therein a cork disc or cushion which may be either natural cork or cork composition. This product has always been known in the trade as an "assembled crown."

In the manufacture of "center spot" crowns, the assembled crowns are then introduced into a machine by which the "center spot" or facing is adhesively affixed to the cushion disc of the assembled crown.

I have carefully read the following portion of the specification of my original application filed January 7, 1927, Serial No. 159,743:

"At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice the coating will be softened by heat after the crown is assembled. This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the metal foil spot to the cork.

.

It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished,

[fol. 1893] for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus."

The use of the term "assembled crown" in the clause "preheating the assembled crown" is correct. An "assembled crown" is now understood and always has been understood by me and by those familiar in the art to mean merely a metal shell of the crown type having a cushion disc deposited therein. Whenever I refer in the specification to the spotted crown, I refer to it as the "assembled unit." It will be noted that this expression is used throughout the specification. For example, the expression (p. 3, l. 12 et seq., "the assembled unit is then cooled and the cooling may advantageously be coupled with pressure etc.," illustrates that I clearly drew a distinction between the term "assembled crown" and the term "assembled unit."

The expression "assembled crown," as used in line 6 of the second paragraph above quoted, was used by me in the sense it is ordinarily used in the art. Ever since my association with the Crown Cork & Seal Company of Baltimore, over seventeen years ago, I, and everyone with whom I am acquainted in the crown cork industry, have used the expression "assembled crown" to refer simply to a cap consisting of a metal shell having the cork disc inserted and [fol. 1894] adhesively affixed in position. Since prior to 1919, these assembled crowns have been produced in the plant of the Crown Cork & Seal Company of Baltimore, Maryland, upon machines of the type disclosed in the patent to Goebel, No. 1,469,557, granted Oct. 2, 1923. It will be noted that the expression "assembled crown" is used repeatedly in the specification of the above noted patent in exactly the same sense it is employed by me. For example, note the following portions of the patent specification:

"In making closures of this type, according to one method, the shell, binding disk and sealing disk are assembled, the *assembled crown* is heated to soften the adhesive material, and the crown is subjected to pressure

and a cooling medium. It is to apparatus for *assembling crowns* of the type mentioned that the present invention relates." (Page 7, lines 18-26, emphasis ours.)

"Finally, the *assembled crown* is delivered to a heating and cooling wheel." (Page 1, lines 92-95, emphasis ours.)

The patented art includes numerous illustrations of the use of the expression "assembled crown" to designate exactly what I intended to designate in the above quoted portion of my specification. A few examples are the following:

Patent No. 1,402,780, McManus, Jan. 10, 1922, describes a machine for applying center spots to the cushion discs of crown caps. This patent repeatedly refers to the caps which are introduced into the machine to be spotted as "[fol. 1895] assembled caps." Note the following portions of the specifications: p. 2, l. 67 and p. 6, ll. 37-43. The portion of the specification last referred to reads as follows:

"In the form of the invention shown the protecting facing disk is applied after the cork or *other resilient disk* has been assembled with the metal part of the cap, and the details of the machine are so constructed as to adapt the machine to the handling of the *assembled caps*." (Emphasis ours.)

Patent No. 1,574,913, McManus, March 2, 1926. This patent describes a machine for inserting cushion discs in crown caps. The machine is identified in the specification p. 1, l. 18 as a "cap assembling machine."

Patent No. 1,580,642, Binder, April 13, 1926. This patent describes a mechanism for assembling sealing discs with crown caps. The caps produced are described in the specification (p. 4, l. 49) as "*assembled crowns*."

Patent No. 1,444,615, McManus, Feb. 6, 1923, describes a machine for performing the same function and the crown or cap produced thereby is identified in the specification (p. 5, l. 23) as an "assembled cap."

Patent No. 1,662,862, McManus, March 20, 1928, covers a delivery mechanism for a machine intended to assemble cushion discs with the metal shells of crown caps and the caps produced by the machine are identified as "assembled bottle caps" (specification p. 1, l. 11).

[fol. 1896] Patent No. 1,354,530, Angus, Oct. 5, 1920. The specification of this patent refers to a crown, which is fed

into a spotting machine in the manner described by me, as an "assembled crown." See p. 1, l. 18.

It has been the invariable practice in the art of manufacturing crown caps to identify machines for combing a cushion disc with a metal shell as "assembling machines" and to term the product of this machine an "assembled crown" or "assembled cap."

The quoted portion of the application was intended by me to describe a method which I fully disclosed prior to January 7, 1927, to the patent counsel who prepared the application, namely, H. M. Humason, Esq., of the firm of Philipp, Sawyer, Rice & Kennedy. Prior to January, 1927, I disclosed said process to Mr. Humason, both direct and through Mr. Frank L. Lloyd of Baltimore, Maryland, who for over seventeen (17) years has been associated with the Crown Cork & Seal Company, Inc., and its predecessor.

I refer particularly to the sentences of the specification (Serial No. 159,743 and Serial No. 664,410) which reads:

"This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol."

The above disclosure was intended by me to describe alternative methods of insuring a sticking of the adhesively coated center spot to the cushion disc as soon as the spot is [fol. 1897] deposited. In the second method, the adhesive coating on the foil strip is pre-softened by moistening slightly with a solvent so that, as soon as the punched center spot falls on the cushion disc, it tends to stick thereto. The first method described in the preceding sentence involved the preheating of the assembled crowns which are fed into the spotting mechanism so that the pre-applied heat will soften the coating on the spot as soon as the spot is deposited on the cushion disc.

The foregoing was the meaning I intended to convey by the portions of the specification quoted. In other words, when I used the term "preheating the assembled crown," I meant only one thing, namely, that the assembled crowns being fed to the spotting mechanism had heat applied thereto prior to the deposition of the spot in order to effect sticking of the spot to the cushion disc "as soon as the metal foil spot is deposited." This prevents dislodgement

or moving of the spots from their exactly centered position. An exact centering of the spot on the cushion disc is absolutely essential in order that only a very narrow marginal portion will overlies the lip of the bottle and the greater portion of the width of the bottle lip entirely around the same may uniformly contact with the cushion disc.

This procedure was fully described by me to Mr. Frank L. Lloyd, and the portions of the specification above quoted were intended to convey an understanding of such procedure.

My attention has been called to the comma which appears after the word "coating" in the above quoted portion of the specification. It is my feeling that this comma does [fol. 1898] not make the sentence misleading, but if it does make possible any interpretation other than the one I intended, as above set forth, its presence is a typographical error which I have not heretofore noted. The words "as soon as," in my judgment, clearly qualify and relate to the softening of the coating and not to the heating. They mean, as was intended by me, that the assembled crown, i. e., the metal shell and cushion disc, is preheated so that as soon as the metal foil spot is deposited, the coating will be softened.

Further deponent sayeth not.

Albin H. Warth.

Sworn and subscribed to before me, a Notary Public, this 14th day of March, 1934. Florence M. Meckrotte, Notary Public. (Seal.)

IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

vs.

JOHNSON

Affidavit

STATE OF MARYLAND,

City of Baltimore, ss:

Frank L. Lloyd, being first duly sworn, deposes and says:

I am of legal age, and for twenty (20) years have been associated with the Crown Cork & Seal Company, Inc., of

[fol. 1899] Baltimore, Maryland, and its predecessor the Crown Cork & Seal Company of Baltimore City. In January, 1927, and for sometime prior to that date, I was chief engineer of the Crown Cork & Seal Company of Baltimore City. Among my duties was the handling of patent matters, including the transmission of disclosures for patent applications to the patent attorneys for the company who were at that time Philipp, Sawyer, Rice & Kennedy of New York City. Mr. H. M. Humason of that firm personally handled practically all of the patent work for my company.

Among the disclosures which I submitted to Mr. Humason was one which afforded a basis for an application of Albin H. Warth, Serial No. 159,743, filed January 7, 1927. I discussed the said application prior to its filing with Mr. Humason, and the said Albin H. Warth also discussed the same with him. Prior to the filing of this case among the other steps described therein, Albin H. Warth fully explained to me two steps which he had developed for the purpose of insuring that the center spot applied to the cushion disc is accurately centered the instant it is deposited on the cork disc in order that in the further steps of his method, the spot would not move from its centered position. I have read the accompanying affidavit of Albin H. Warth and know that the statements contained therein are true.

I have further read that portion of the specification which reads as follows:

"It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to [fol. 1900] prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus."

I understood from the explanation of the invention given by Dr. Warth prior to the filing of the application on January 7, 1927, and now understand from the above quoted portion of the specification, that the instantaneous sticking of the spot is obtained in two ways. First, the coating on

the foil strip may be softened by a solvent, whereby when the spot is punched therefrom and deposited on the cork, it is immediately struck in its accurately centered position. Second, a preheating method is employed. It was clear that the strip itself or the spot is not preheated. The language distinctly states that the step involves "preheating the assembled crown." An "assembled crown" has always meant in the crown industry and to anyone skilled in this art, simply a metal shell of the crown type having a cushion disc therein. It is distinguishable from an assembled "unit," such as is referred to in other parts of the Warth specification from which I have quoted above. It is evident that the term "assembled unit," as used in said specification, means an assembled crown having a center spot [fol. 1901] affixed to the cushion disc thereof. To use the preheating method, instead of a solvent, to obtain sticking "as soon as the metal foil spot is deposited, it is obvious from the language of the specification, in the light of common knowledge in the art of spot crown manufacture available prior to January, 1927, that the preheating is to be effected at some point or time prior to depositing the spot on the cushion disc. Otherwise, there would be no preheating; nor would there be preheating of an "assembled crown," as this term is understood in the art and evidently used in the specification.

The only reasonable interpretation which I place upon the sentence quoted is that the assembled crown, i. e., the shell with cushion disc therein, is preheated so that the applied heat will soften the coating "as soon as the metal foil spot is deposited."

The word "preheating," as used in the specification means to me, and in my judgment would mean to anyone skilled in the crown cap art, the application of heat before the spot is applied, particularly in view of the fact that the word "preheating" is used in connection with the application of heat to an "assembled crown." Delaying the application of heat until the spot is applied would not constitute "*preheating the assembled crown*," as these words are understood in the art.

Further deponent sayeth not.

Frank L. Lloyd.

Subscribed and sworn to before me, a Notary Public, this 1st day of March, 1934. W. S. Brownley,
Notary Public. (Seal.)

[fol. 1902] IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201.

WARTH

vs.

JOHNSON

Affidavit

STATE OF NEW YORK,

County of New York, ss:

H. Monroe Humason, being duly sworn, deposes and says:

I am 46 years of age and reside in New Canaan, Connecticut. Since July 1, 1927, I have been a member of the firm of Philipp, Sawyer, Rice & Kennedy, attorneys and counsellors at law, with offices at 220 Broadway, New York City and for over 11 years prior to that date I was employed by said firm as an assistant attorney. Said Philipp, Sawyer, Rice & Kennedy were for many years general patent counsel for Crown Cork & Seal Company of Baltimore City, predecessor of Crown Cork & Seal Co., Inc., and from about July, 1916, to about July, 1928, I personally prepared substantially all the patent applications of said Crown Cork & Seal Company of Baltimore City, under the general supervision of James Q. Rice, Esq., now deceased.

Among the applications so prepared by me was an application of Albin H. Warth, Serial No. 159,743, filed January 7, 1927.

[fol. 1903] About the end of 1930 prosecution of this Warth application was taken over by Cushman, Bryant & Darby (now Cushman, Darby & Cushman), since which time neither I nor my firm have had anything to do with the prosecution of said application or any divisional or related applications.

According to the Warth invention as disclosed to me, prior to the preparation of the application, Mr. Warth proposed to prevent dislodgment of the coated spot during any interval between the time the spot is assembled and the final sticking, which final sticking may be accomplished, for example, by heat and pressure. Two ways of attaining this end were proposed, one involving a preheating to soften the coating sufficiently to position the spot temporarily, the other involving moistening with a solvent to the same end.

This step of temporarily preventing dislodgment is set forth in the original application in the following paragraph:

"It may be desirable to secure the metal foil spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgment of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. Or the coating may be softened by moistening slightly with a solvent, such as benzol. In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus."

[fol. 1904] I refer particularly to the following sentence from that paragraph:

"This may be accomplished, for example, by preheating the assembled crown to soften the coating, as soon as the metal foil spot is deposited."

For convenience I shall here refer to the heating for temporarily preventing dislodgment as "preventive heating" as distinguished from final heating.

It is my opinion that the above quoted sentence should not be read and cannot properly be read to mean that the coating of the spot is given its temporary softening by preventive heating when and only when the spot has been deposited. On the contrary, it is my opinion that the sentence should be read and properly must be read to mean that the preventive heating of the crown is effected before the spot is deposited. Putting it another way, the words "as soon as" relate to the softening of the coating and not to the step of heating. Or, to paraphrase the sentence, it means: "This may be accomplished, for example, by heating the assembled crown before the spot is deposited, thereby to soften the coating of the spot as soon as the spot is deposited."

The reasons for the above opinion are as follows:

1. Since the avowed object, as stated in the quoted paragraph, is to prevent dislodgment of the spot between the time of depositing the spot and the time of final sticking, the word "preheating" of the crown logically, reasonably [fol. 1905] and naturally means heating prior to the time when softening is desired, i. e., prior to the depositing of the spot. If the preventive heat is to be applied to the crown unit when and only when the spot has been deposited, it is

not a prior heating and the prefix "pre" becomes meaningless, in view of the context.

2. I am unable now to recall why I used the precise wording and terminology I did use in drafting the specification in question. But I feel sure that had I intended to limit the step of effecting preventive heating to a time when and only when the spot had been deposited, I would naturally have said that the "assembled unit is heated as soon as the spot is deposited so as to soften the coating," or words to that effect, and would not have used the word "preheating" because in view of the context, "preheating" is illogical and more or less meaningless unless the heating is prior to the depositing of the spot.

3. As is more fully set forth in an affidavit of said Warth about to be filed herewith, the term "assembled crown" in the trade means definitely a metal shell in which has been inserted and affixed a cork disc or cushion. Therefore, when the sentence in question refers to preheating the "assembled crown," it logically means heating the metal shell and assembled cork disc and not that plus something else.

4. I am informed that some question has arisen over the comma appearing after the word "coating" in the above quoted sentence. I do not now recollect why or how that comma was inserted. But in my opinion, the presence or [fol. 1906] absence of that comma is immaterial because, in view of the above remarks the sentence should be construed to mean a heating prior to depositing the spot, comma or no comma. Certainly the comma was not inserted for the purpose of defining the preventive heating as being effected when and only when the spot has been deposited, i. e., it was certainly not inserted to make the words "as soon as" relate to the heating rather than to the softening. If its presence leads to such an interpretation, then and to that extent it is a typographical error.

I have read the proposed affidavits of Albin H. Warth and Frank L. Lloyd about to be filed herewith and the same are true to the best of my knowledge and belief.

Further deponent saith not.

H. Monroe Humason.

Subscribed and sworn to before me this 9th day of March, 1934. John M. Crane, Notary Public.
(Seal.)

[NOTE.—The decision in this interference is marked Plaintiff's Exhibit No. 85, page 864 of this record.]

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N° 16,075



A.D. 1913

Date of Application, 12th July, 1913—Accepted, 9th July, 1914

COMPLETE SPECIFICATION.

Improvements relating to Closures for Bottles, Jars and the like.

I, ERNEST FRÉDÉRIC EDUARD DEMUTH, of Townmead Road, Fulham, London, in the County of Middlesex, Manufacturer, do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

5 My invention has reference to closures or stoppers for bottles jars and like vessels of the well known "crown cork" type.

In bottle closures of this kind the metallic shell or capsule is lined with a disc of resilient material usually cork which has sometimes been faced with tin-
 10 foil and which when the closure is applied to the mouth of the vessel serves to make a more or less tight joint and prevent the contents of the bottle leaking or in the case of aerated liquids preventing escape of gas. In practice however considerable difficulty is experienced in obtaining a satisfactorily tight joint
 15 more especially in the case of bottles containing aerated liquids for the reason that the cork lining which is necessarily thin and more or less permeable allows the liquid to pass through to the back thereof and so destroy the tightness of the joint, as it is not feasible to obtain as tight a joint between the glass bottle mouth and the metallic foil as is possible where the glass is directly in contact with the cork.

Now the object I have in view is to remedy the aforementioned defects and in
 20 order that my invention may be readily understood and carried into effect I will now proceed to describe the same fully for which purpose reference is to be had to the accompanying drawings in which:—

Figure 1 represents a bottom plan view of a closure of the "crown cork" type and

25 Figure 2 is a section taken on line *a—a* of Figure 1.

The metallic capsule 1 is as usual provided with a disc of cork or other
 resilient material 2 and this latter is in accordance with my invention provided
 a disc 3 of metallic foil parchment or similar thin liquid resisting material of
 such size that it shall prevent the liquid contents of the bottle coming into con-
 30 tact with the disc 2 while leaving sufficient of said disc 2 exposed that the mouth of the bottle may—when the closure is in position as indicated in Figure 2—
 make a tight joint directly therewith. The disc 3 is secured to the cork disc 2 by cementing or in any other appropriate manner.

A closure under the present invention effectually obviates the aforesaid dis-
 35 advantages and that portion of the cork disc in direct contact with the bottle mouth is free to expand under climatic conditions without prejudicially affecting the tightness of the joint.

The disc 3 may be of any desired thickness without interfering in any way with the efficiency of the device.

40 Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed, I declare that what I claim is:—

1. A closure of the crown cork type characterized by the fact that the cork or
 [Price 8d.]

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1908

2

Nº 16,075.—A.D. 1913.

Demuth's Improvements relating to Closures for Bottles, Jars and the like.

like resilient lining is provided with a disc of metallic foil or like thin liquid resisting material in such a manner as to prevent the liquid contents of the bottle coming into contact with said cork lining while allowing the bottle mouth to abut directly against said lining substantially as described.

2. A closure of the crown cork type comprising the combination with a metallic shell or capsule a cork or like resilient lining arranged therein and a disc of protective material attached to said lining all arranged and operating as described for the purpose specified.

Dated this 11th day of July, 1913.

For E. F. E. DEMUTH. 10

A. E. White, A.I.Mech.E.,
Chartered Patent Agent,

Jessel Chambers, 88/90, Chancery Lane, London, W.C., and
Singer Building, New York, U.S.A.

Redhill: Printed for His Majesty's Stationery Office, by Love & Malcomson, Ltd.—1914.

A.D. 1913. JULY 12. N° 16,075.
DEMUTH'S COMPLETE SPECIFICATION.

(1 SHEET.)

Fig. 1.

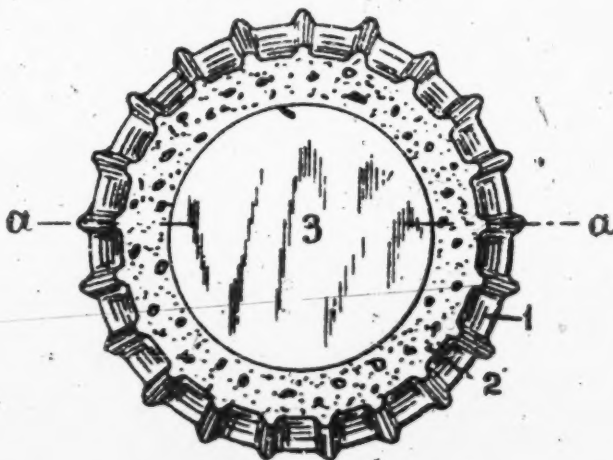


Fig. 2.



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PAGE

N° 26,297



A.D. 1909

Date of Application, 13th Nov., 1909

Complete Specification Left, 14th Jan, 1910—Accepted, 10th Nov., 1910

PROVISIONAL SPECIFICATION.

Improvements in and connected with Bottle Seals.

We, JOHN MACCORMACK, of Balcraig, Prestwick, Ayrshire, Scotland, Wire Manufacturer, and DAVID EHLIN MCPHUX, of Myrtle Cottage, Shettleston, Lanarkshire, Scotland, Secretary, do hereby declare the nature of this invention to be as follows:—

5 This invention relates to improvements in bottle seals.

In metallic seals, as presently in use, within the cap of such seals, there is a resilient washer of soft rubber and a lining of block tin, but seals made in such manner are not satisfactory inasmuch as the rubber rings never being of an equal size a perfect seal cannot be relied upon. The object therefore of our
10 invention is to construct a seal which will be a perfect fit as well as to reduce the cost of manufacture.

According to our invention, we use in combination with the cap of the seal a disc of wood pulp or other similar material having a covering of tin foil. In
15 manufacture the wood pulp is coated with an adhesive substance and then the tin foil is laid on and afterwards the discs stamped out.

Dated this 11th day of November, 1909.

JOHN LIDDLE,
154, St. Vincent Street, Glasgow,
Chartered Patent Agent.

COMPLETE SPECIFICATION.

Improvements in and connected with Bottle Seals.

We, JOHN MACCORMACK, of Balcraig, Prestwick, Ayrshire, Scotland, Wire Manufacturer, and DAVID EHLIN MCPHUX, of Myrtle Cottage, Shettleston, Lanarkshire, Scotland, Secretary, do hereby declare the nature of this invention
25 and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This invention relates to improvements in that class of metallic bottle seals in which a disc or washer is placed within the cap of such seals, and has for its
30 object to construct a seal which will be a perfect fit as well as reduce the cost of manufacture.

According to our invention, we use in combination with the ordinary cap of the seal a disc or washer of wood pulp, which is absorbent and expanding with moisture and with a layer of tin-foil intimately adhering to the underside of the disc or washer by an adhesive substance. In manufacture the wood pulp
35 is coated with the adhesive substance and then the tin-foil is laid on and afterwards the discs or washers stamped out;

[Prior Ed.]

Macquennick and McPherson's Improvements in and connected with Bottle Seals.

In order that our invention may be properly understood and readily carried into effect, we have herewith appended one sheet of drawings, of which

Figure 1 is a section of part of the neck of a bottle sealed in combination with a disc or washer of wood pulp made in accordance with and embodying our invention. 5

Figure 2 is a plan of the disc or washer detached, and

Figure 3 is a side elevation of the same all hereafter more fully referred to and described.

Referring to the drawings, A is the disc or washer of wood pulp, which is coated on its under-surface with some adhesive material in order that a layer 10 of tin-foil B, covering the under-surface shall be intimately attached thereto. In the sealing operation, the disc or washer A being composed of wood pulp which is absorbent and expanding with moisture; should any leakage take place, the moisture will act on the edge of the disc or washer and cause it to swell and so stop the leakage and thus make the seal a perfect fit. 15

Having now particularly described and ascertained the nature of our said invention and in what manner the same is to be performed, we declare that we are aware that it has been proposed to use in conjunction with bottle seals discs saturated in melted wax and with a loose sheet of tin-foil either above or below same and we make no specific claim for such but what we do claim is:— 20

In metallic bottle seals of the class in which a disc or washer is placed within the cap of such seals, forming such disc or washer of wood pulp coating same on its under side with an adhesive substance and intimately fixing thereto a layer of tin-foil all substantially as and for the purposes hereinbefore described and illustrated on the accompanying sheet of drawings. 25

Dated this 7th day of January, 1910.

JOHN LIDDLE,

154, St. Vincent Street, Glasgow,
Chartered Patent Agent.

Reference has been directed in pursuance of Section 7, Sub-section 4, of the 30 Patents and Designs Act, 1907, to Specifications No. 6041 of 1887, and No. 5076 of 1905.

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A.D. 1909, Nov. 13. N^o 26,297.

MACCORMACK & another's COMPLETE SPECIFICATION.

Fig 1

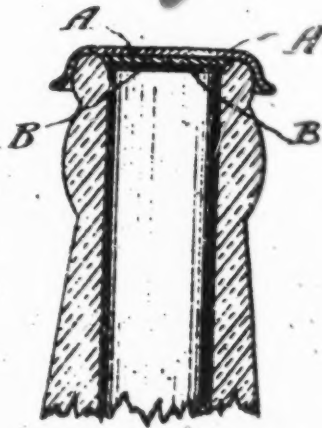


Fig 2



Fig 3

This Drawing is a full size reproduction of the Original

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903,865.

J. A. JONES.
COMPOSITION CORK.
APPLICATION FILED JUNE 12, 1907.

Patented Nov. 17, 1908.

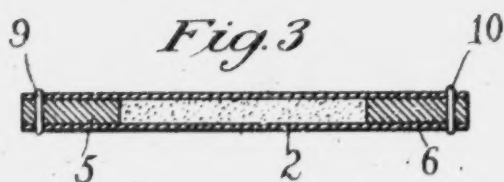
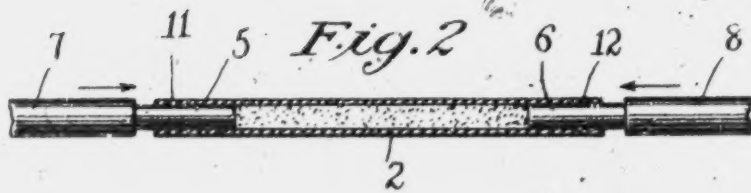
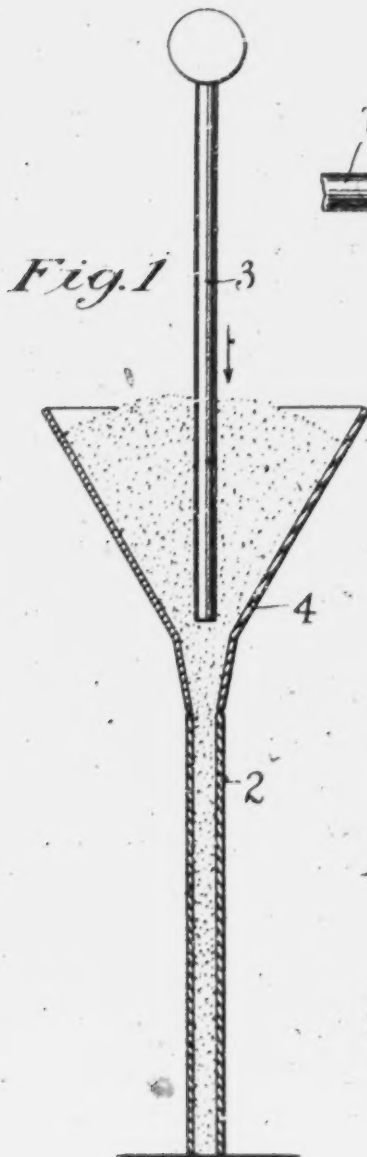
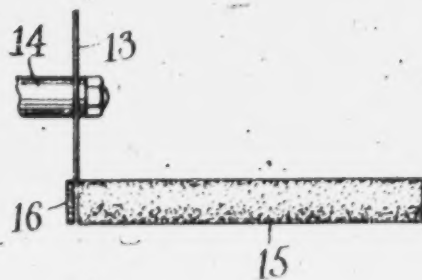
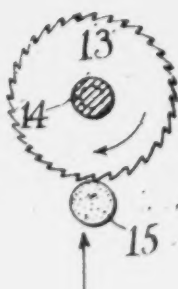


Fig. 4 Fig. 5



Witnesses:
Chas. W. King
& Chauncy

Inventor:
John A. Jones
by *[Signature]*
Att'y.

UNITED STATES PATENT OFFICE.

JOHN A. JONES, OF NEW YORK, N. Y.

COMPOSITION CORK.

No. 903,865.

Specification of Letters Patent.

Patented Nov. 17, 1908.

Application filed June 12, 1907. Serial No. 378,599.

To all whom it may concern:

Be it known that I, JOHN A. JONES, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented a certain new and useful Composition Cork of which the following is a specification.

This invention relates to composition cork.

The main object of the invention is to provide a composition cork which can be used for all purposes for which corks, whatever the form thereof, made from cork wood, may be employed.

A particular object of the invention is to provide a composition cork capable of such use which will withstand a considerable amount of heat and pressure, as for example the heat of pasteurization employed in pasteurizing beer and similar liquids, and the pressures usually found in bottles containing carbonated beverages.

The process of producing composition cork of this character comprises essentially the mixing of suitably granulated cork with a binder such as a solution of pure rubber, and afterward compressing the granulated cork and heating it to a sufficient temperature while in the compressed condition to retain it substantially in the form to which it was compressed, that is to say, the heating should be carried far enough to vulcanize the rubber employed to unite the granules of cork.

The apparatus which may be employed for producing the composition cork may be varied considerably, but simple means for performing the essential operations will be hereinafter described in detail.

In the drawings Figure 1 is a sectional elevation of devices for forming granulated cork, which has been mixed with a suitable binder, into rods of composition cork. Fig. 2 is a sectional side elevation illustrating means for compressing such a cork rod in a tube. Fig. 3 is a similar view of a tube with a cork rod held therein under compression. Figs. 4 and 5 are details illustrating in end and side elevation respectively a finished cork rod, and means for cutting the same up into cork disks.

In carrying my invention into effect I may form the composition cork into solid pieces of any desired shape and size by utilizing a suitable mold in which to form the same. In order, however, to form cork rods, and cork disks from such rods, I prefer to make use of a cylinder or tube of considerable

strength, which may be filled with granulated cork which has been mixed with a binder and into which the granulated material may be forced into a compact mass. Usually this cork will be filled into such a tube or cylinder, which is here indicated by 2, by tamping it in with a plunger such as 3, the granulated cork being preferably led to the receiving end of the tube 2 by means of a hopper or funnel, such as 4, the outlet from which is substantially of the same diameter as the receiving end of the cylinder 2 and registers therewith. By means of the plunger 3 the granulated cork in the hopper or funnel 4 is forced into the cylinder 2 and tamped down by repeated blows until the cylinder is filled with cork in a state of considerable compression.

As soon as the cylinder has been filled with approximately all the granulated cork that can be forced into it by this mode of filling and compressing the granulated material, additional pressure may be brought to bear by means of a pair of plungers, such as 5 and 6, fitting the opposite ends of the cylinder 2. These two plungers may be operated by power in any suitable manner, as by the reciprocating compressors 7 and 8 which force in the plungers 5 and 6 to the positions shown in Fig. 3, in which they may be held by pins, such as 9 and 10, passing through suitable openings, such as 11 and 12, in the tube 2 and through corresponding openings in the plungers 5 and 6. These plungers 5 and 6 thus constitute plugs for closing the ends of the cylinders 2 after the cork has been fully compressed therein. It will be noticed that the cork in the cylinder in Fig. 1 is compressed to approximately one-third its original length by the plungers or plugs 5 and 6, although the compression may be carried to any desired point within limits.

The material which is placed in the hopper 4 and compressed into the cylinder 2 is chiefly granulated cork. The cork should be granulated to such an extent that the major portion thereof will go through a screen of about three-sixteenths inch mesh, but the finer particles of cork and the cork dust may all be left in the mass and utilized. After granulation there is added to the cork a binder which is preferably a solution of pure rubber containing, or to which has been added a vulcanizing medium. In this solution sulfur, and gasoline or any other suit-

able volatile solvent of rubber may be employed. The proportions in which the different ingredients may be mixed will vary according to the character of the article to be made. For cork rods such as are shown in the drawings two ounces of granulated cork by weight and approximately one and one-half ounces by measure of rubber solution may be combined and thoroughly mixed so that every particle of the cork is covered with a thin film of vulcanizable binder. In the solution so combined with the cork I obtain good results by combining approximately one ounce of rubber by weight with a pint of gasolene, benzin or naphtha or other rubber solvent by measure, this solution containing a sufficient quantity of sulfur to assure vulcanization in the granulated mass after it is properly heated.

In preparing the materials for heating, the cork and the rubber solution are first thoroughly mixed so that every particle of cork is covered with a thin film of the vulcanizable liquid. The volatile portions of the solution are driven off in any suitable way, either by permitting the material to stand and the volatile substances to escape, or by subjecting the material to a temperature of about 70° F. to volatilize the solvent quickly. It is not essential to drive off the volatile substances at this stage of the process, though it is advisable to do so.

The granulated cork, after thoroughly mixing it with the solution just described, is then packed into cylinders, such as 2, or any other form of mold, as in the manner before described, that is, by tamping or otherwise filling the granulated material into tubes or cylinders, as shown and described in connection with Fig. 1. This tamping produces a substantially even and uniform rod throughout the length thereof, and this uniformity of compression is assured by subsequently forcing in the plungers or plugs 5 and 6 from both ends of the tube, the cork rod being compressed to substantially the same extent throughout its length by these various operations and devices. After compression the molded composition cork is subjected to the action of heat for the purpose of effecting vulcanization of the relatively small quantity of rubber contained in the compressed material. The temperature employed may be that of soft vulcanization and may vary from 125° to 350° F. Usually the desired temperature is maintained for from twenty to thirty-five minutes. The heat is ordinarily applied directly to the metallic tubes 2 while the mass of compressed material is held therein under compression, as by means of the plugs 5 and 6. After the tubes so heated have been cooled the plugs may be withdrawn therefrom and the rods removed. The rods resulting from these operations are compact and close-grained with

no holes in them. The cork rods so formed may be cut up into pieces of any desired lengths, this being dependent upon the use to which such cut pieces are to be put. In Figs. 4 and 5 I have illustrated at 13 and 14 a cutter and its shaft for severing the cork rod into sections. Here this cork rod, which is designated by 15, is cut into short lengths to form cork disks, such as 16, each of these disks being only one-eighth inch or less in thickness, firm and close-grained, with no holes of any kind in them and having the particles of cork so intimately united that they will withstand all temperatures employed in pasteurizing beer, etc., and all pressures to which bottles containing carbonated liquids are subjected.

An important advantage resulting from the use of corks or cork disks made in the manner herein described is that they have great elasticity in the direction of the line of compression, that is to say, in the direction of the thickness of the cork disks, and this is a very important factor in sealing disks to be used in beer bottles and for analogous purposes.

What I claim is:

1. Composition cork, constituting a substantially homogeneous body of solid cork consisting of granules of pure cork covered with thin coatings of a binder which unites all the granules and is insoluble by, and substantially neutral in the presence of, water, beer, and similar beverages both at normal and at high temperatures and pressures.

2. Composition cork, constituting a substantially homogeneous body of solid cork consisting of granules of pure cork covered with thin coatings of rubber which is permanently united with all the granules by soft vulcanization and is insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

3. A solid homogeneous elastic composition cork disk, consisting of granules of cork covered with thin coatings of rubber which is permanently united with all the granules by soft vulcanization and is insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

4. A solid homogeneous elastic composition cork disk, consisting of granules of cork covered with thin coatings of rubber which is permanently united with all the granules by soft vulcanization while the cork and the rubber are in a compressed state, said rubber and the disk being insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

5. Composition cork, constituting a sub-

stantially homogeneous body of solid cork having its air cells substantially unclogged and of substantially the same resiliency as natural cork wood and consisting of granules of pure cork covered with thin coatings of a binder which unites all the granules but does not impregnate them and which is insoluble by, and substantially neutral in the presence of, water, beer and similar beverages both at normal and at high temperatures and pressures.

6. Composition cork embodying a substantially homogeneous body of solid cork incapable of shrinkage under any ordinary conditions of atmosphere or use as a sealing medium and consisting of granules of pure cork covered with thin coatings of a binder which unites all the granules and is insoluble by water, beer and similar beverages both at normal and at high temperatures and pressures.

7. Composition cork constituting a substantially homogeneous body of solid cork normally expansible and incapable of shrink-
mosphere or use as a sealing medium and 25
age under any ordinary conditions of atmos-
phere or use as a sealing medium and con-
sisting of granules of cork covered with
thin coatings of a binder which unites all
the granules and is insoluble by, and sub- 30
stantially neutral in the presence of, water,
beer and similar beverages both at normal
and at high temperatures and pressures.

Signed at New York, in the county of New York, and State of New York, this 11th 35
day of June, A. D. 1907.

JOHN A. JONES.

Witnesses:

EDGAR A. FELLOWS,
ROBERT CHAMPION.

It is hereby certified that in Letters Patent No. 903,865, granted November 17, 1908, upon the application of John A. Jones, of New York, N. Y., for an improvement in "Composition Cork," an error appears in the printed specification requiring correction, as follows: Page 3, line 25, consisting of the words "mosphere or use as a sealing medium and" should be stricken out; and that the said Letters Patent should be read with this correction therein that the same may conform to the record of the case in the Patent Office.

Signed and sealed this 22d day of December, A. D., 1908.

[REAL.]

C. C. BILLINGS,
Acting Commissioner of Patents.

1638

J. A. JONES.
VESSEL SEAL.

APPLICATION FILED OCT. 16, 1909.

1,110,138.

Patented Sept. 8, 1914

Fig. 2

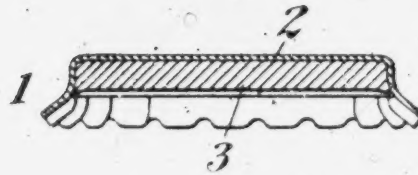
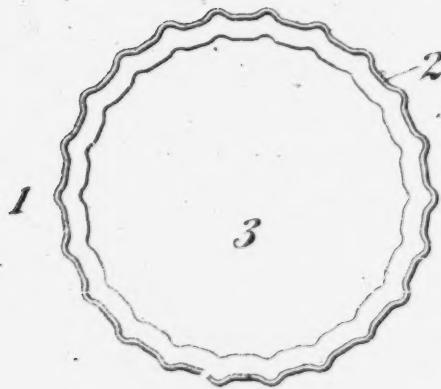


Fig. 1



Witnesses.
Chas. H. King.
R. Champion

Inventor:
John A. Jones
by *W. H. Stanford*
Attorney.

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UNITED STATES PATENT OFFICE.

JOHN A. JONES, OF NEW YORK, N. Y.

VESSEL-SEAL.

1,110,138.

Specification of Letters Patent.

Patented Sept. 8, 1914.

Application filed October 16, 1909. Serial No. 522,941.

To all whom it may concern:

Be it known that I, JOHN A. JONES, a citizen of the United States, and a resident of New York, in the county of New York and State of New York, have invented certain new and useful Improvements in Vessel-Seals, of which the following is a specification.

This invention relates to vessel seals, and particularly to a vessel seal formed as a unitary article, which invention is disclosed in Letters Patent of Mexico, dated October 27th, 1908 and numbered 8,516; France, #395,950, dated November 4th, 1908; Spain, #44,304, dated January 16th, 1909; and Belgium, #211,762, dated November 6th, 1908.

The main object of the invention is to provide a device of this description having a metal or equivalent stiff cap adapted to engage the neck of a bottle or similar article and a sealing layer formed therein. This sealing layer may be of any material suitable for the purpose, either a single substance or a combination of two or more substances, and said substance or combination should be sufficiently plastic to permit its being formed or molded within said cap. When the sealing layer is composed of small particles of material united by a binder, as will usually be the case, the composition will be fed into the caps, formed or molded therein, subjected to pressure, and the binder set while the composition is under compression. Said composition is generally made up of particles of granules of cork coated with a binder. This composition is fed into metal shells, held under compression to form a sealing layer or disk, and the binder then set, in which case the sealing layer formed in said cap is a substantially homogeneous but soft, elastic and readily compressible body of solid gas-tight cork made up of granules permanently united by thin coatings of a binder that is substantially neutral in the presence of water, beer and similar beverages under all ordinary conditions of bottling, pasteurization and use, and capable of withstanding the temperature of pasteurization without being dissolved, disintegrated or distorted thereby, and substantially incapable of shrinkage under any ordinary conditions of temperature or use.

Bottle seals of the crown type as previ-

ously made have consisted of a metal cap adapted to engage a bottle neck and a sealing disk of cork wood inserted therein and insecurely held by friction or an adhesive. Cork disks, however, even of the best quality, are more or less porous, causing leakage of gas when used on bottles containing beer or aerated liquids. The porous nature of cork disks also necessitates the use of a layer of waxed paper or similar material between the cap and the cork to prevent corrosion of the metal. Such seals are also unduly expensive, it being necessary to use the best grades of cork wood to insure good results. Moreover, many operators, both hand and machine, have been necessary in cutting and sorting these disks, treating them to increase their pliability, cutting paper fillers therefor, and assembling these various independent parts in the metal shell, the result being an expensive closure. To increase the effectiveness of vessel seals and at the same time decrease the cost of production thereof, applicant has produced an article having a non-porous sealing layer formed or molded directly in the metal cap and preferably adhering thereto. This sealing layer may be of any material capable of sealing a bottle mouth, a preferred type being that in which granules of cork are united by a binder, said sealing layer being in such case non-porous, elastic, and capable of withstanding a considerable amount of heat and pressure, such as the heat of pasteurization and the pressure usually found in bottles containing carbonated beverages, and the binder being insoluble by and substantially neutral in the presence of water, beer or similar beverages.

In the drawings Figure 1 is an underside view of a vessel seal embodying my invention, and Fig. 2 is a section of the same.

In the drawings I have shown a unitary vessel seal, designated generally by 1, said seal consisting of an outer shell or cap 2 of any suitable form, and usually of metal, adapted to engage the neck of a bottle, and a molded or formed sealing layer 3 therein of any material suitable for sealing the mouth of a bottle or similar vessel. Good results have been obtained by the use for this purpose of a composition of granulated cork and a binder, and said binder may be any suitable for the purpose. The ingredients of this composition may be combined in varying proportions and under different

conditions to produce a sealing layer of sufficient elasticity to insure an effective closure for such vessel mouth. When the sealing layer is a composition of an adhesive nature, as will usually be the case, it is particularly favorable to the formation of a unitary seal, said composition being formed or molded directly in the cap and adhering thereto without the interposition of any additional member such as the paper necessary with porous cork disks.

A unitary seal as herein described possesses many advantages over the ordinary closure or any seal having the cap and the sealing layer made as separate articles requiring assembling. It is more effective, owing to the non-porous character of the formed sealing layer, and also because of the certainty that said sealing layer will be positively held in the cap, which is not the case with the loose or slightly cemented-in cork disk. The cost of production is also much less than in the case of articles heretofore used, as the sealing layer is ordinarily made of materials that are easily obtained and cheap, this being especially the case when granulated cork is employed. The binder, of which a very small amount is ordinarily employed, is also inexpensive. Another great saving arises out of the reduction of the number of operations necessary to produce the finished product.

No one has made, so far as I am aware, a complete vessel seal, consisting of a metal cap and a layer of sealing material—preferably composition cork such, for example, as described herein—formed in such cap; nor has any one made such a vessel seal with a sealing layer, whether of this or some other material, permanently united with the metal cap so that the seal, considered as a whole, is a unit and not a mere assemblage of independent elements; and these are important features of my invention.

A vessel seal such as herein described may be used for all purposes for which seals of large or small diameter have heretofore been employed, and on bottles containing beer, aerated liquids and other beverages, as well as on vessels containing liquids or commodities not containing gas pressure.

In forming my unitary seal, any metal or other stiff cap may be used that is adapted to engage a bottle neck. Within this cap is placed a portion of material capable of forming a seal for the mouth of a bottle and preferably adapted to adhere to the cap. Said sealing material is then formed in said cap as desired and subjected to further treatment, if necessary, to cause it to retain the desired form. When this sealing material is a composition of granulated cork and a binder of rubber the rubber is subjected to soft vulcanization while the sealing layer is held under compression. These operations

may be carried out in the manner described in Patent #303,865, granted to me November 17th, 1908.

What I claim is:

1. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid sealing material formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

2. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid composition sealing material formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

3. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a molded layer of compressible and expansible solid composition cork formed under pressure in said cap and forced by said pressure into intimate union with the cap to form a unitary article.

4. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a layer of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but soft elastic and readily compressible body of solid gas-tight cork made up of granules permanently united with one another and with the metal cap by thin coatings of a binder, said body being also substantially incapable of being dissolved, disintegrated or distorted by pasteurization.

5. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a layer of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but soft elastic and readily compressible body of solid gas-tight cork made up of granules permanently united with one another and with the metal cap by thin coatings of a binder, said body being also substantially incapable of being dissolved, disintegrated or distorted by pasteurization and substantially incapable of shrinkage when in use.

6. A vessel seal, comprising a flanged metal cap having at its inner side a cavity constituting a mold space, and a disk of sealing composition molded in said cap under pressure and forced by said pressure into intimate union with the cap, said composition being a substantially homogeneous but

t elastic and readily compressible body
solid gas-tight cork made up of granules
permanently united by means of soft vul-
canization by thin coatings of a rubber
layer, said disk being also substantially in-
capable of being dissolved, disintegrated or
distorted by pasteurization and being sub-
stantially incapable of shrinkage when in use.

Signed at New York, in the county of
New York, and State of New York, this 14th 10
day of October, A. D. 1909.

JOHN A. JONES.

Witnesses:

C. S. CHAMPION,
R. CHAMPION.

1642

G. M. C. NIELSEN.
MACHINE FOR MAKING BOTTLE CAPS.
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 1.

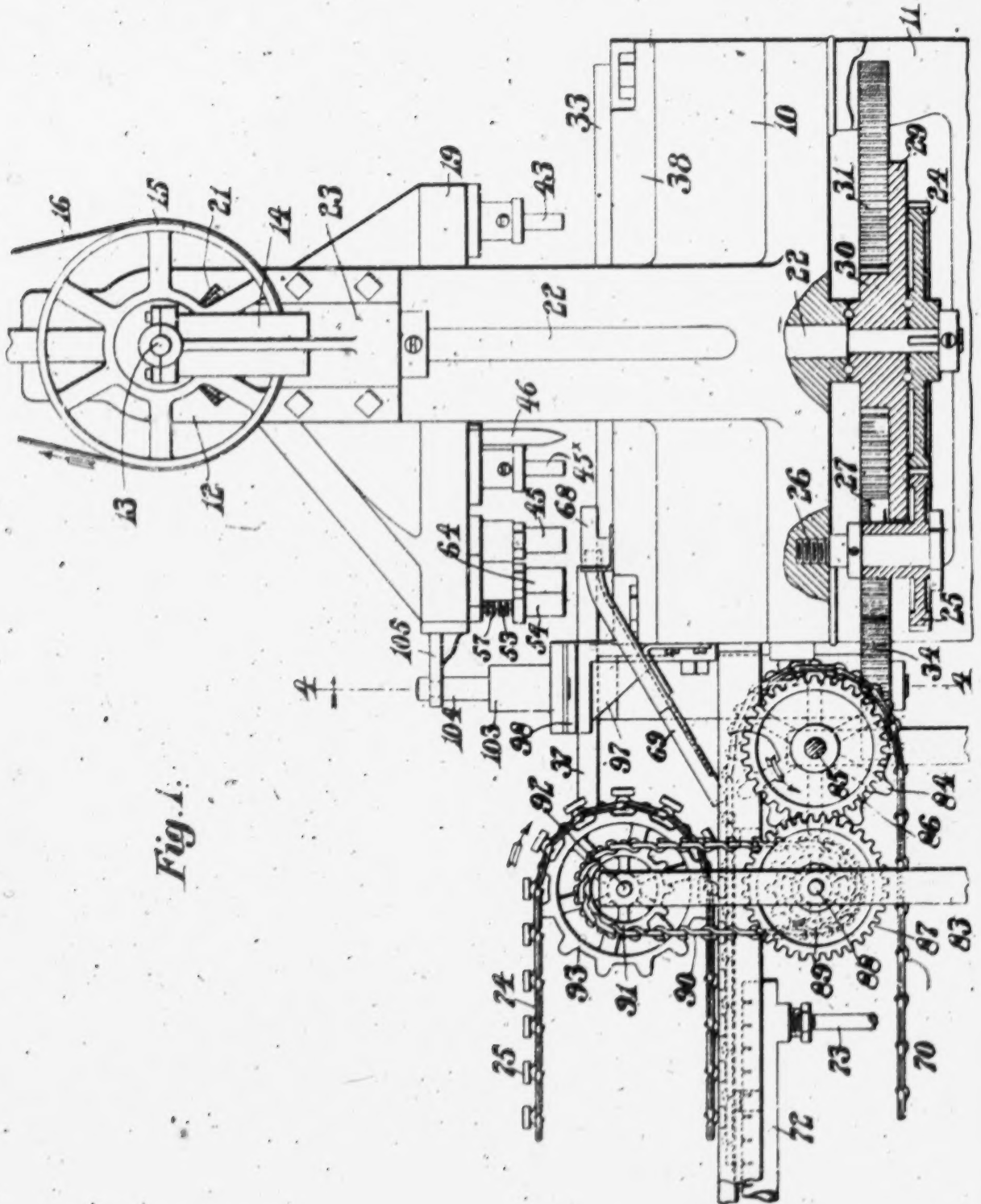


Fig. 1.

Witnesses:

Amos Hansen
Nathan L. Lombard

Inventor:

George M. C. Nielsen,
by Walter E. Lombard,
Atty.

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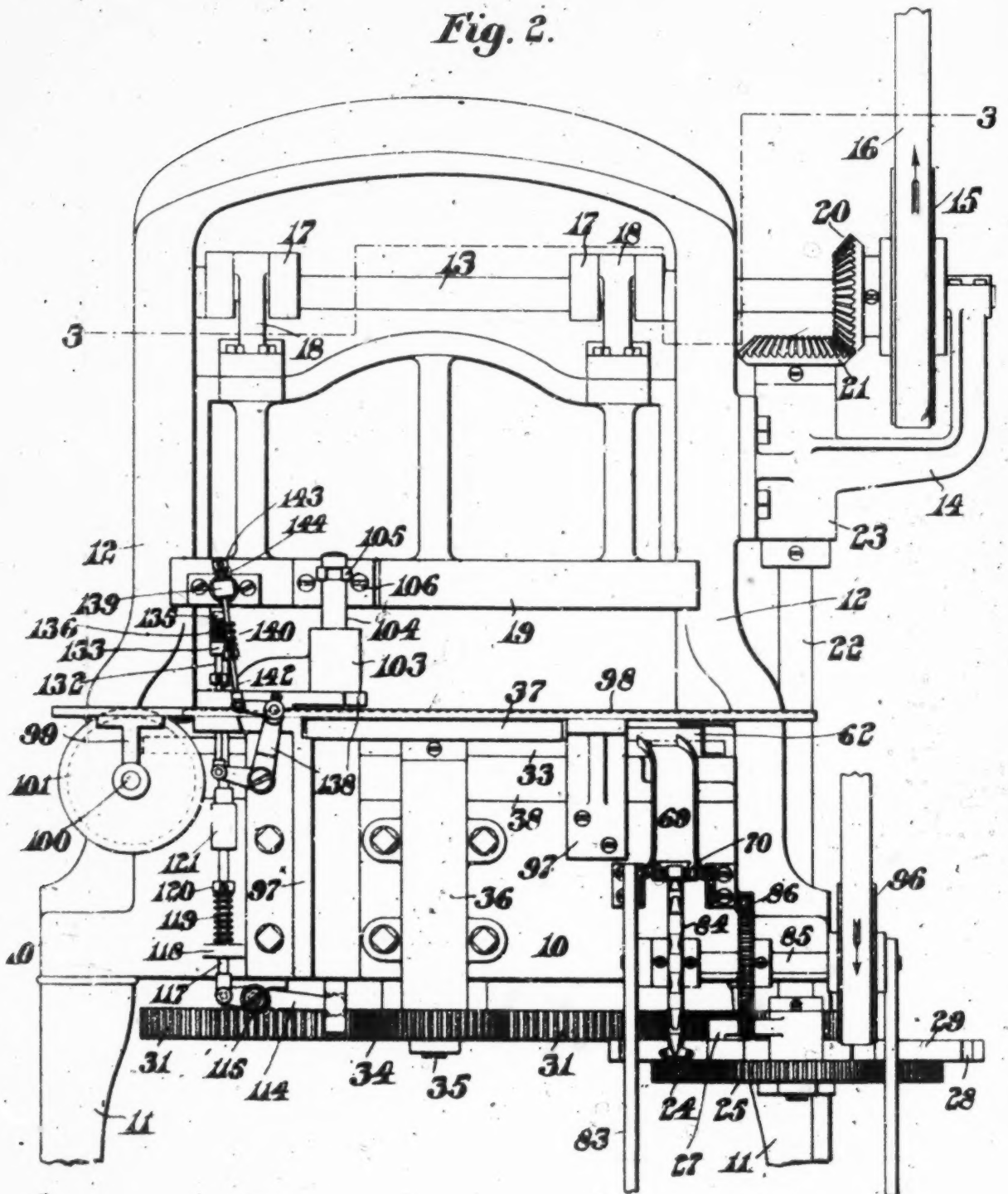
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G. M. C. NIELSEN.
MACHINE FOR MAKING BOTTLE CAPS.
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.
7 SHEETS—SHEET 2.

Fig. 2.



Witnesses:

Howard Hanson
Nathan Lombard

Inventor:

George M. C. Nielsen,
by Walter E. Lombard,
Atty.

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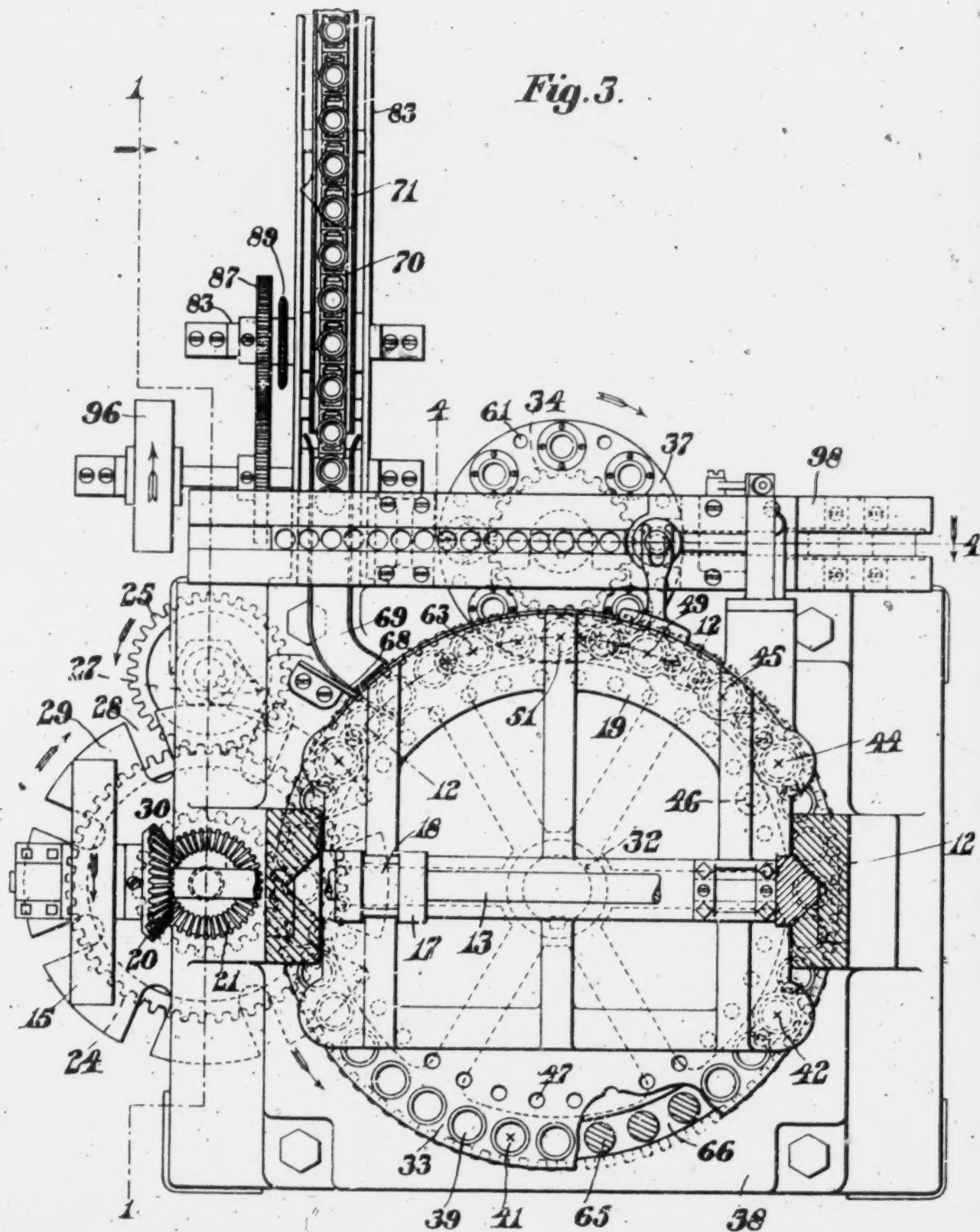
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Patented Aug. 22, 1916.
7 SHEETS—SHEET 3.



Witnesses:

Howard Hanscom
Nathan C. Lombard

Inventor:
George M.C. Nielsen,
by Walter E. Lombard,
Att'y.

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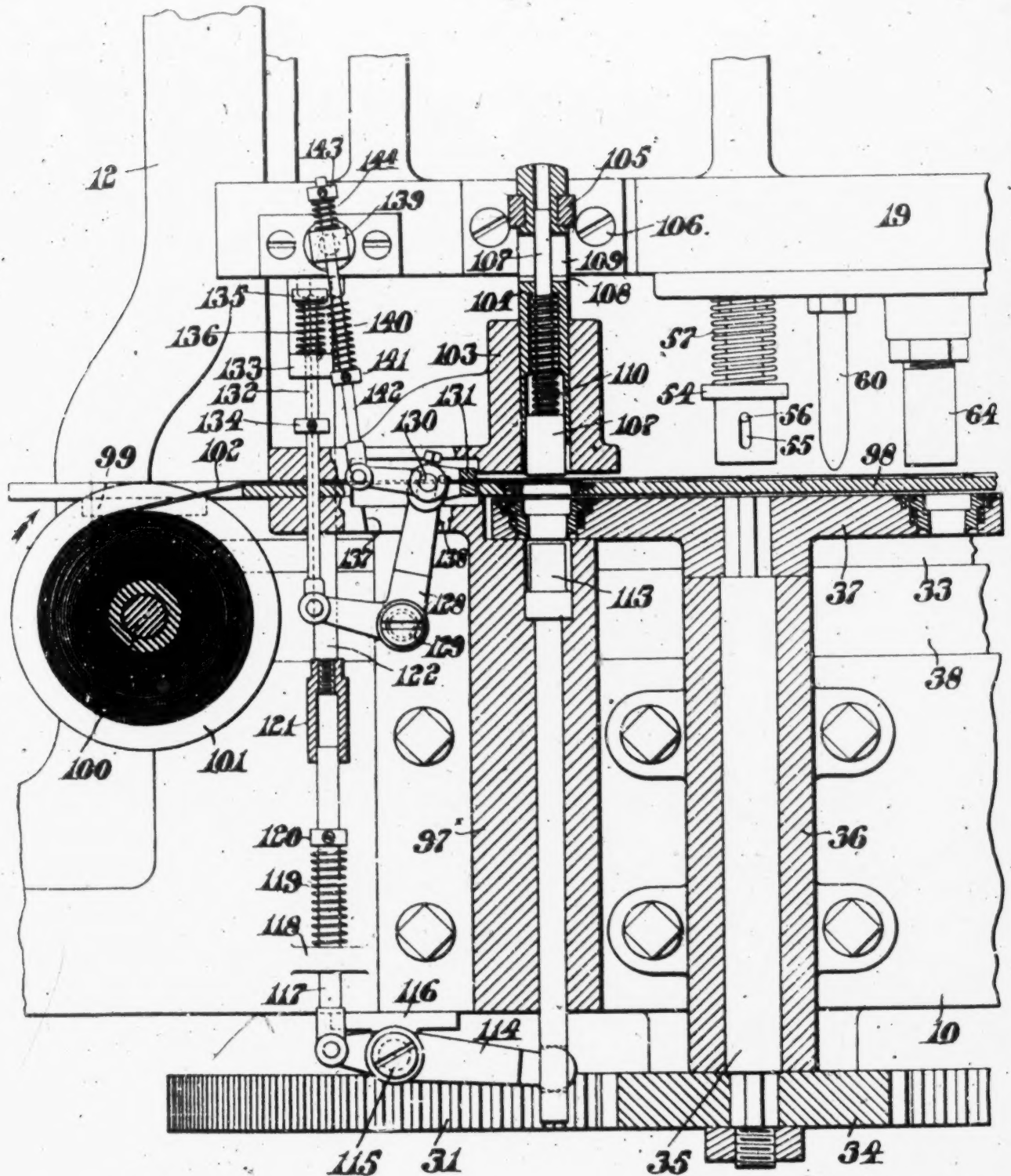
G. M. C. NIELSEN.
MACHINE FOR MAKING BOTTLE CAPS.
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 4.

Fig. 4.



Witnesses:

Howard Hanson
Nathan C. Lombard

Inventor:

George M.C. Nielsen,
by Walter C. Lombard,
Atty.

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1646

G. M. C. NIELSEN.
MACHINE FOR MAKING BOTTLE CAPS.
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.
7 SHEETS—SHEET 5

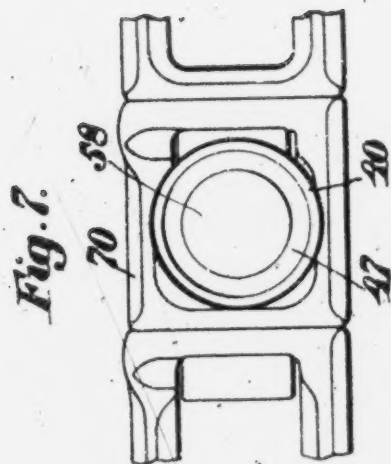


Fig. 7.

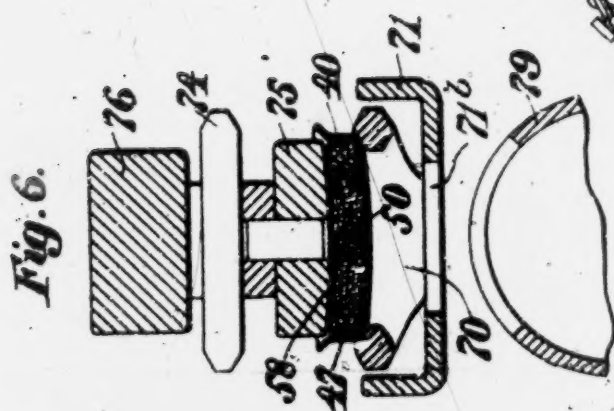
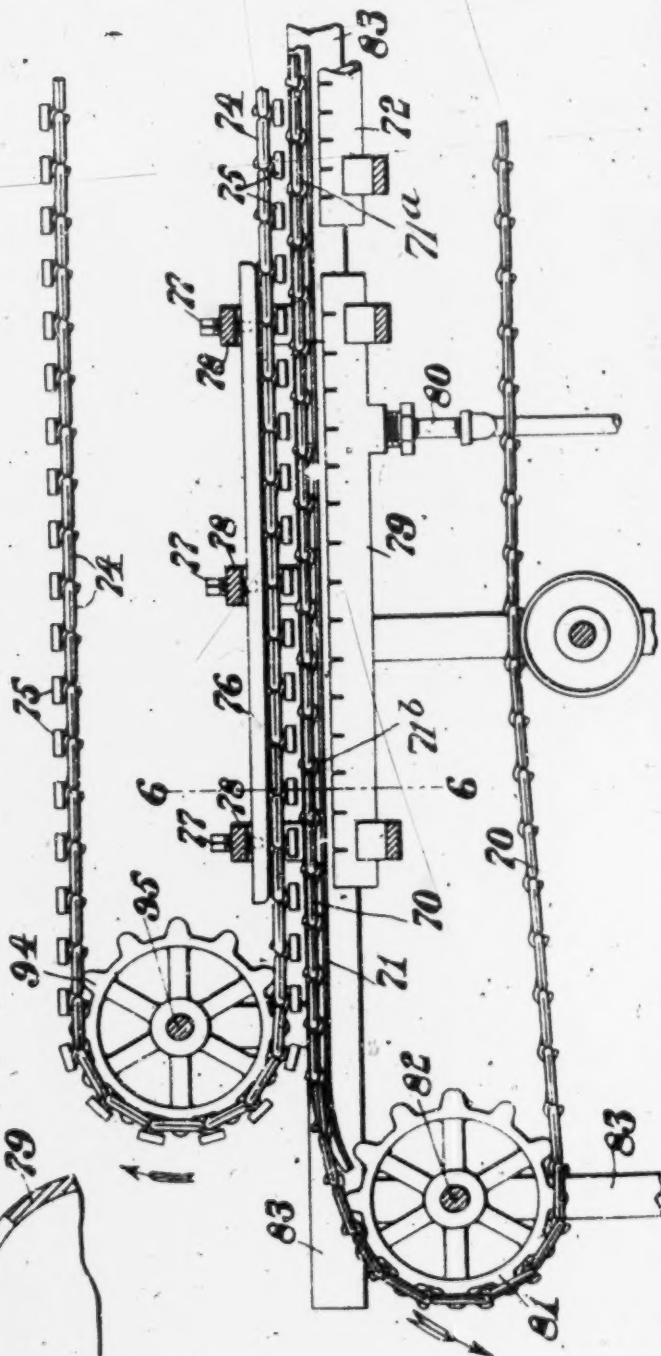


Fig. 6.

Fig. 5.



Witnesses:

Howard Hanson
Nathan C. Lombard

Inventor:

George M. C. Nielsen,
by Hatten & Lombard
Atty.

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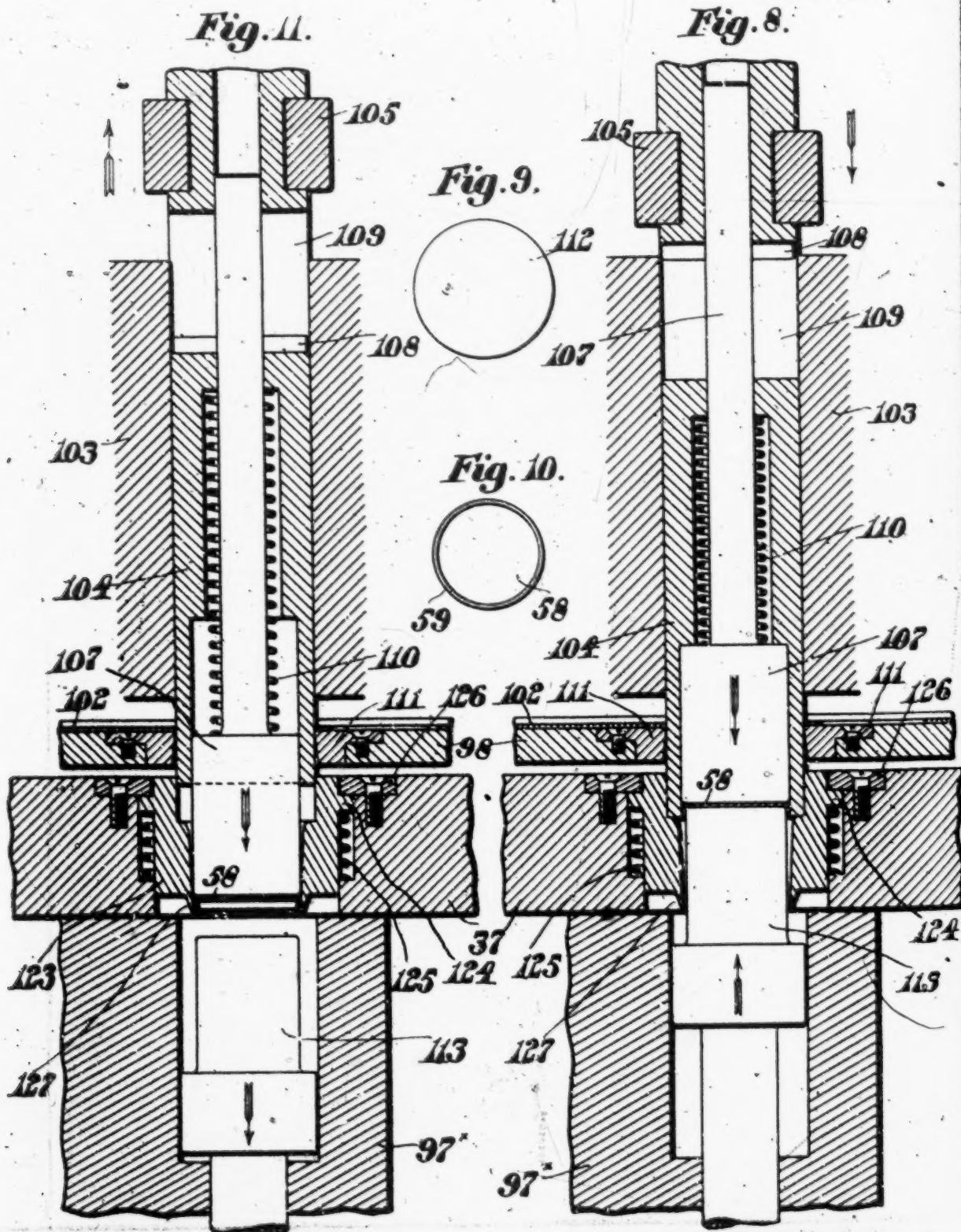
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G. M. C. NIELSEN.
MACHINE FOR MAKING BOTTLE CAPS.
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.

7 SHEETS—SHEET 6.

**Witnesses:**

Nathan L. Lombard
Howard Hancock

Inventor:

George M.C. Nielsen,
by Walter E. Lombard,
Atty.

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1648

G. M. C. NIELSEN.
MACHINE FOR MAKING BOTTLE CAPS.
APPLICATION FILED APR. 28, 1909.

1,195,392.

Patented Aug. 22, 1916.
7 SHEETS—SHEET 7.

Fig. 12.

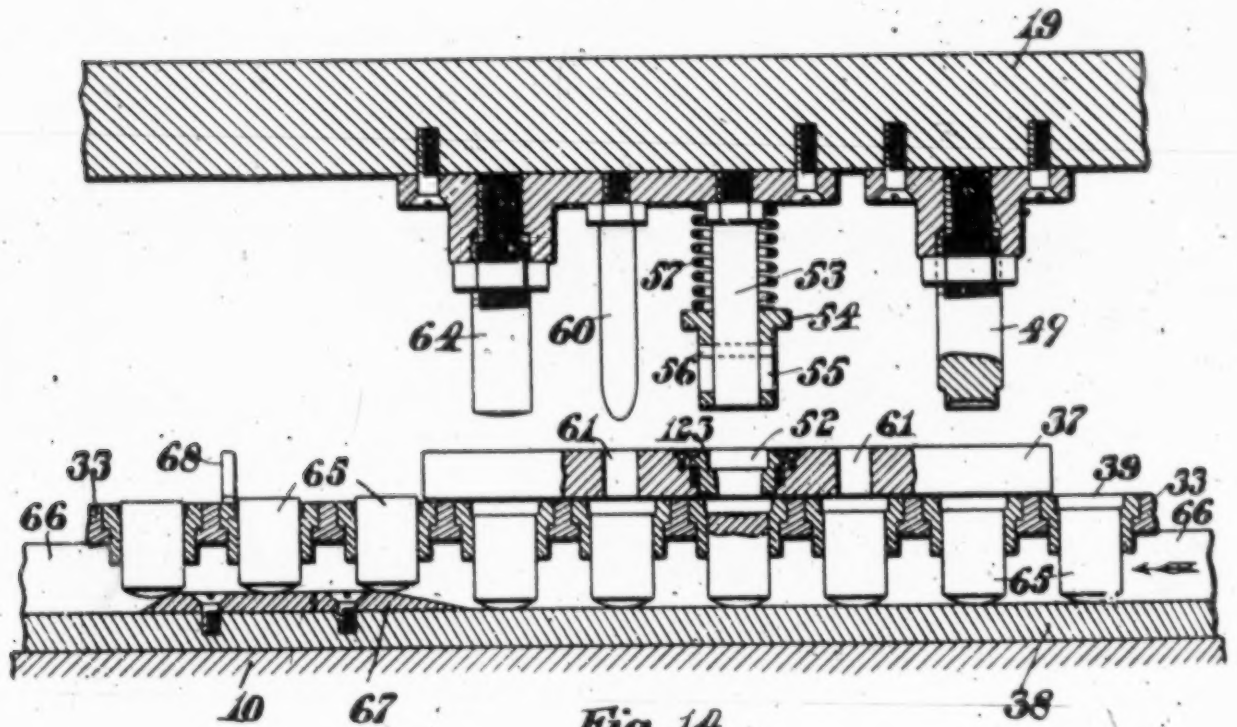
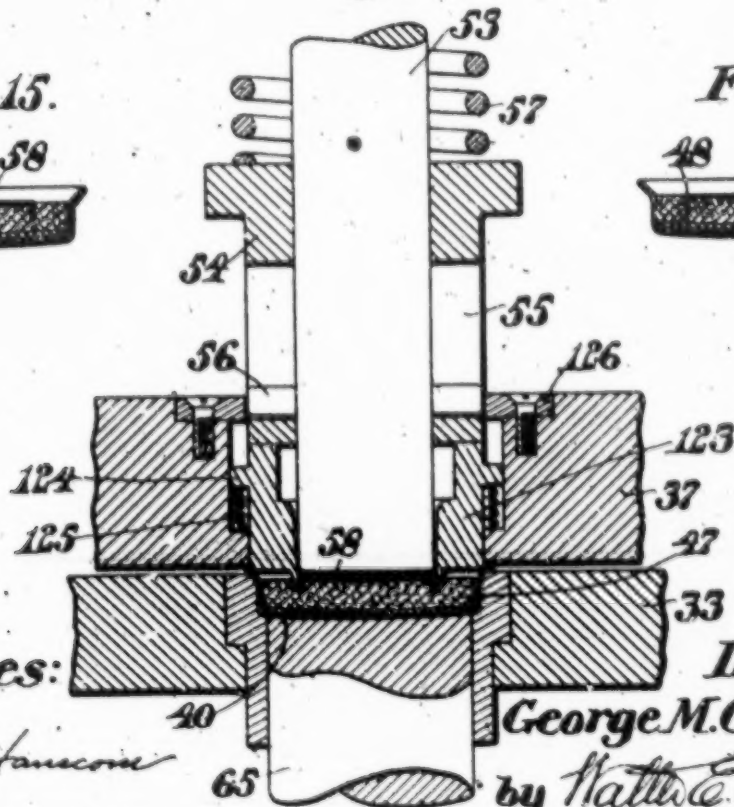
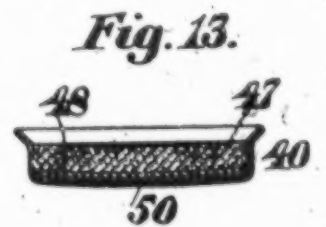
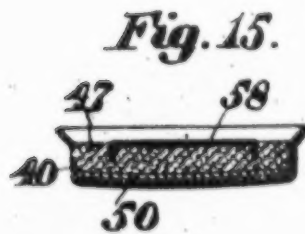


Fig. 14.



Witnesses:

Howard Hanson
Nathan E. Lombard

Inventor:

George M. C. Nielsen,
by Nathan E. Lombard
Atty.

UNITED STATES PATENT OFFICE.

GEORGE M. C. NIELSEN, OF MILLIS, MASSACHUSETTS, ASSIGNOR TO UNITED CORK & SEAL CO., OF MILLIS, MASSACHUSETTS, A CORPORATION OF MAINE.

MACHINE FOR MAKING BOTTLE-CAPS.

Specification of Letters Patent. Patented Aug. 22, 1916.

1,195,392.

Application filed April 28, 1909. Serial No. 493,051.

To all whom it may concern:

Be it known that I, GEORGE M. C. NIELSEN, a citizen of the United States of America, and a resident of Millis, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Machines for Making Bottle-Caps, of which the following is a specification.

This invention relates to an apparatus for manufacturing bottle caps and particularly to that class of caps which are provided with a lining of cork secured to the inner side of the cap by means of an adhesive.

It has for its object the provision of means for assembling the various parts of the cap and when thus assembled, subjecting them to heat to cause the adhesive to adhere to the cork and the cap between which it is interposed and then subjecting the cap to pressure for a limited length of time and subjecting the cap to the action of a cold air blast while under pressure.

Another object of the invention is to provide a means for protecting the inner face of the cork lining from the action of the contents with which the bottles on which the caps are used are filled.

The invention consists in certain novel features of construction and arrangement of parts which will be readily understood by reference to the description of the drawings and to the claims hereinafter given.

Of the drawings: Figure 1 is a side elevation of one end of a machine embodying the features of this invention, portions thereof being cut in section on line 1—1 on Fig. 3. Fig. 2 is a rear elevation of the same. Fig. 3 is a horizontal section of the same, the cutting plane being on line 3—3 on Fig. 2. Fig. 4 is an enlarged vertical section of the devices for stamping out the protecting plates, the cutting plane being on line 4—4 on Figs. 1 and 3. Fig. 5 is a vertical section of the end of the machine opposite to that shown in Fig. 1. Fig. 6 is an enlarged transverse section of a portion of the same, the cutting plane being on line 6—6 on Fig. 5. Fig. 7 is a plan of a portion of the chain conveyer, showing a

completed cap supported thereon. Fig. 8 is an enlarged vertical section showing the cutting dies for cutting out the cork protecting plates from strips of facing material. Fig. 9 is a plan of a blank cut from the sheet of facing material by the cutting die. Fig. 10 is an inverted plan of the protecting plate after an annular flange has been formed thereon. Fig. 11 is a vertical section similar to Fig. 8 showing the positions of the various parts assumed after the annular flange has been formed upon the protector plate. Fig. 12 is a sectional elevation, the cutting plane being on line 12—12 on Fig. 3 and showing the various devices for cutting the annular groove in the cork lining to the cap, placing the flanged protector plate thereon, and forcing the flange thereof into said annular groove. Fig. 13 is a section of a cap after the annular groove has been cut into the cork lining in which condition it is positioned beneath the plunger, adapted to force the protecting plate therein. Fig. 14 is an enlarged section showing the operation of the device for forcing the protecting plate into the annular groove in the cork lining, and Fig. 15 is a section of the completed seal with the protector plate therein.

Similar characters designate like parts throughout the several figures of the drawings.

In the drawings, 10 represents a bed mounted on any suitable supports such as the legs 11 and provided with the upwardly extending guide members 12 in the upper end of which is mounted a revoluble crank shaft 13, the outer end of which is preferably supported in a bracket 14 and has secured thereto a pulley 15 through which power is imparted by means of the belt 16 to said crank shaft 13. The cranks 17 formed upon or secured to the shaft 13 are connected by links 18 to a member 19 adapted to be vertically reciprocated on the guides 12 during the revolution of the shaft 13. The crank shaft 13 has also secured thereto a bevel gear 20 meshing with a similar bevel gear 21 secured to a vertical shaft 22 having at its upper end a bearing 23 in the bracket 14. Keyed to the lower

end of this shaft is a large gear 24 meshing with a smaller gear 25 supported upon a stud 26 secured to the under side of the bed 10. The hub of the gear 25 has formed thereon a crank arm 27, the outer end of which is provided with a roller adapted to engage with the radial slots 28 in a disk 29 revolubly mounted upon the lower end of the shaft 22 and thus cause an intermittent movement of a small gear 30 formed upon and movable with said disk plate 29. This smaller gear 30 meshes with a large gear 31 keyed to the shaft 32, shown in dotted lines in Fig. 3, the upper end of said shaft 32 having secured thereto so as to be revoluble therewith a large dial plate 33. The gear 31 also meshes with a smaller gear 34 secured upon the lower end of the shaft 35 mounted in a vertical bearing 36 secured to the side of the bed plate 10, the upper end of said shaft 35 having keyed thereto a smaller dial plate 37, the lower face of which coincides with the upper face of the dial plate 33.

25 The dial plate 33 rests upon a bolster plate 38 secured to the upper face of the bed 10, the upper face of the dial plate 33 being provided with a plurality of pockets 39, each one of which is adapted to receive a cup-shaped metal cap 40 such as is shown in Figs. 13 and 15. These cup-shaped members are fed into the pockets 39 at the front of the machine in any well-known manner either by any well-known automatic feeding device or they may be fed thereto by hand, if desired. Preferably these cup-shaped members are fed automatically to the pockets 39 at the point 41, as indicated in Fig. 3 of the drawings, and then by the rotation of the dial plate 33 they are carried by the intermittent movements of said dial plate to the position 42, indicated in Fig. 3, where each in its turn receives a circular disk of adhesive material cut from any suitable source of supply and placed in the bottom of the cup-shaped member by the downward movement of the plunger 43 secured to the under face of the reciprocating member 19. The further rotation of the dial plate carries the cup-shaped members successively to the position indicated at 44 on Fig. 3 where each cup-shaped member is supplied with a cork filling, these disks of cork being fed thereto in any well-known manner, either automatically or otherwise, as desired. The metal cup-shaped member, with the disk of adhesive material and the layer of cork therein is then moved with the dial 33 into a position beneath the bunter 45 which, in the downward movement of the reciprocating frame 19, forces the cork filling onto the adhesive material and insures a proper seating of the same within said cup-shaped member. A pilot pin 46 securely attached to the reciprocating frame 19 is adapted, in

the downward movement of said frame 19 to enter one of the holes 47 of the dial plate 33 and thereby position the dial plate on the completion of each of its successive movements, thus insuring steadiness during the various operations and also acting as a lock to prevent further movement of said dial plate until the operations in progress are completed. When the cap has passed from beneath the bunter 45 it is in condition to receive the metal facing or protector plate which constitutes one of the most important features of this invention. In order to provide for this a grooved cutter 46 is adjustably secured to the reciprocating frame 19 and in its downward movement the cutting edge thereon cuts into the layer of cork 47 within the metal cup-shaped member 40 an annular groove 48, when said cup-shaped member 40 is in the position 49 indicated in Fig. 3 of the drawings. The next movement of the dial 33 carries the cup-shaped member 40 with its disk of adhesive material 50 and its lining of cork 47 having the annular groove 48 cut in its upper face into the position 51 beneath an open ended pocket 52 in the small dial 37, the pocket 52 and the pocket 39 being in axial alinement and also in axial alinement with a plunger 53 secured to the under face of the reciprocating member 19. This plunger 53 has slidably mounted thereon a sleeve 54 provided with slots 55 into which project the ends of a pin 56 passing through said plunger 53 to limit the movement of said sleeve in either direction, said sleeve being normally retained in the position shown in Fig. 12 of the drawings by means of a spiral spring 57 surrounding said plunger 53. When the cup-shaped member 40 is thus positioned at 51 beneath the pocket 52, the pocket 52 contains a metal protector plate 58 provided with an annular flange 59 which extends downwardly in said pocket 52 in position to be forced by the downward movement of the plunger 53 into the annular groove 48 formed in the cork disk 47 in the cup-shaped member 40, thus leaving the cup-shaped member provided with the protector plate 58, as shown in Fig. 15 of the drawings. This protector plate, when the caps are in use, being adapted to cover the opening of the mouth of the bottle to which the cap or seal is secured to prevent the contents of the bottle from acting upon the cork lining to cause its deterioration and consequential disintegration which permits small particles of cork to drop into the contents of the bottle to its manifest injury. During this operation the pilot pin 60 secured to the reciprocating member 19 enters one of the holes 61 in the small dial 37 and accurately registers the dial during the operation of the plunger 53, the sleeve 54 being retracted against the tension of the spring 57 during the opera-

tion of the plunger. The next movement of the dial 33 brings the cup-shaped member 40 to the position 63 indicated in Fig. 3 of the drawing in which position the downward movement of the plunger 64 secured to the reciprocating member 19 acts upon the protector plate 58 to slightly cup the same, as indicated in Fig. 15 of the drawings.

The bottoms of each of the pockets 39 of the dial plate 33 are formed by the plungers 65 traveling in an annular groove 66 in the bolster plate 38. In the bottom of the groove 66 is secured a cam member 67 slightly in advance of the position 63, indicated in Fig. 3 of the drawings, so that as the disk 33 continues to rotate after the metal protector plate 58 has been subjected to the action of the bunter 64 the cam 67 will act upon these plungers 65 to elevate them and force the cup-shaped members 40 out of the pockets 39 in the dial plate 33. While the plungers 65 are in such elevated position upon the cam 67 and supporting the cup-shaped members 40 these members 40 come into contact with a deflector plate 68 which causes the cup-shaped members to be dropped into an inclined chute 69, the opposite end of which delivers the cup-shaped members to a continuous chain carrier 70, each link of which is provided with a central opening and is constructed to receive one of the cup-shaped members 40. The plungers 65 are returned to their seats by means of a bunter pin 45* similar to 45 which insures a proper pocket being ready to receive the cups at the feeding point 41. The chain 70 is supported by a tray 71 having side flanges or guides, said tray being provided with two long slots or perforations 71^a and 71^b extending through the bottom thereof. Beneath one of the perforations 71^a in the bottom of the tray 71 is a slotted gas pipe 72 to which gas is supplied through the pipe 73 from any suitable source. When the gas passing from the slots or jets in the pipe 72 is ignited and the flames therefrom come into contact with the outer face of the cup-shaped member 40 supported by the perforated chain carrier 70, the heat from said gas flames will act upon the adhesive material contained within the cup-shaped members 40 and soften the same, making it more tacky. Immediately above the chain 70 is another endless chain 74 provided with a plurality of pressure members 75 adapted to enter the cup-shaped member 40 and force the cork disk 47 and disk of adhesive 50 into closer contact with each other and the inner end of the member 40. After the members 40 have been subjected to the heat from the gas jets of the pipe 72 the chain 74 comes into contact with a pressure plate 76 located over the second slot or perforation 71^b in the tray 71 and adjustable toward and from the chain 70 and its track or tray 71 by

means of the adjusting screws 77 in the frames 78. By means of these adjusting screws 77 the position of the pressure plate may be regulated relative to the track or tray 71 and beneath this second slot is a pipe 79 provided at its top with a plurality of slots through which cold air may pass or be forced from any suitable source of supply communicating with said pipe 79 by the pipe 80 to set the adhesive while under pressure. It is obvious therefore that as the members 40 pass over the gas flames the adhesive material is subjected to the heat therefrom and becomes tacky and when in this tacky condition the continued movement of the carriers 70 and 74 causes the pressure members 75, contacting with the protector plate 58 to be pressed downwardly to insure the firm adherence of the cork to the cap through the instrumentalities of the disk of adhesive material, and while pressure is being thus subjected to the contents of the cup-shaped member 40, the exterior of the cup-shaped member is being subjected to a blast of cold air to cool the same and insure the adherence of the various members of the seal. As the chain 70 passes over the sprocket wheel 81, the finished caps fall off into any suitable receptacle. The sprocket wheel 81 is revolubly mounted upon a shaft 82 mounted in any suitable bearing in a framework 83, the opposite end of the chain 70 being mounted upon a similar sprocket wheel 84 on a shaft 85 driven by means of a pulley 96 which is secured thereon. A gear 86 secured to the shaft 85 meshes with a similar gear 87 on the shaft 88 and on this shaft 88 is a sprocket wheel 89 connected by means of a sprocket chain 90 to a sprocket wheel 91 on a shaft 92 mounted in the framework 83. This shaft 92 has also mounted thereon a sprocket wheel 93 driving the endless chain 74, the opposite end of which is mounted upon the sprocket wheel 94 on the shaft 95. It is obvious that by this construction of driving mechanism the chains 70 and 74 are driven in unison.

Secured to the bed 10 are suitable brackets 97-97* supporting an auxiliary table 98, one end of which is provided with suitable bearings 99 for a shaft 100 upon which is revolubly mounted a reel 101 containing a strip 102 of suitable facing material such as tin, which is adapted to travel along a groove in the upper face of the auxiliary table 98 which extends diametrically of the dial plate 37 and slightly above the same. This strip of material 102 is fed along said groove in the table 98 by means of a suitable feeding mechanism, to be hereinafter described, beneath suitable devices for punching out from the strip of material a flat disk and then by means of forming tools acting in conjunction with the aforesaid punch, upsetting the edges of the disk

to form an annular flange of the right diameter to fit the annular groove in the cork filling.

Secured to the upper face of the auxiliary table 98 is a bearing 103 in which is mounted a punch 104, the upper end of which is provided with an annular groove which is engaged by a forked member 105 secured by screws 106 to the reciprocating member 19. The lower end of the punch 104 is provided with a cylindrical chamber in which is mounted a plunger 107, the stem of which is provided with a pin 108 extending into a diametral slot 109 in said punch, this pin 108 co-acting with the ends of the slot 109 to limit the movement of the plunger 107 in either direction. A spring 110 in a suitable socket in the punch 104 normally retains the plunger in its lowermost position, as indicated in Fig. 4, with the pin 108 at the lower end of the slot 109. The auxiliary table 98 is provided with an opening therethrough in axial line with said punch 104 and has set therein an annular member 111 with a shearing edge, the interior diameter of which coincides with the exterior diameter of the punch 104. It is obvious, therefore, that as the strip of material 102 is fed along the groove in the upper face of the auxiliary table 98 over the annular member 111, that any downward movement of the reciprocating member 19 will cause the punch 104 to operate upon the strip of material and punch therefrom a circular disk or blank 112 suitable to form the protector plate 58. The spring 110 is only strong enough to force the plunger 107 downward after the cutting of the blank is completed, this plunger 107 in its downward movement resting upon the strip of material until the punch 104 has performed its function in cutting the blank 112 from said strip. In axial line with said plunger 107 is an auxiliary plunger 113 sliding in the bracket 97*, this plunger 113 being forced upwardly by means of a lever 114 pivoted at 115 to a bracket 116 secured to the lower side of the bed 10. A rod 117, pivoted to the opposite end of said lever 114 and having a bearing in an ear 118 formed upon the bed 10, is normally held in raised position by means of a spring 119 interposed between said ear 118 and a collar 120 secured to said rod 117.

The upper end of the rod 117 extends into a socket 121 secured to a rod 122 attached to the under side of the reciprocating member 19. The normal positions of the punch 104 and plungers 107 and 113 are as indicated in Fig. 4 of the drawings. When, however, the reciprocating member 19 moves downwardly the forked member 105 on this member acts upon the punch 104 and moves it downwardly into contact with the strip of material 102 and continuing its downward movement the punch coöperating with the

shearing edge of the annular member 111 cuts from the strip of material a blank 112 which is forced downwardly in advance of the punch 104 and the spring-pressed plunger 107 therein until the end of the punch has nearly reached the end of its downward movement. At this time the downward movement of the rod 122 will cause the lower end of the socket 121 to come into contact with the upper end of the rod 117 and cause the lever 114 to operate so that the plunger 113 will be raised and come into contact with the blank 112 and force this blank against the plunger 107 causing the spring 110 to be compressed, this operation causing the flange 59 to be formed upon the blank 112, as indicated in Figs. 8, 10, and 11 of the drawings. As the member 19 moves upwardly the auxiliary plunger 113 will be moved downwardly as indicated in Fig. 11 and the punch 104 will be moved upwardly as indicated in the same figure. The spring 110, however, will have sufficient tension to cause the plunger 107 to move downwardly at this time following the movement of the plunger 113 until the pin 108 reaches the lower end of the slot 109, when further downward movement of the plunger 107 and the protector plate 58 will cease while the auxiliary plunger 113 continuing its downward movement will separate itself from the protector plate 58 and return to its normal position. A continuation of the upward movement of the punch 104 will act upon the pin 108 to raise the plunger 107 and return both the punch 104 and the plunger 107 to their normal positions leaving the protector plate 58 within the cylindrical chamber of one of the annular members 123, one of which is located in each of a plurality of cylindrical openings in the dial plate 37. Each of the members 123 is provided with an outwardly extending flange 124 which by a spring 125 is forced into engagement with a retaining ring 126 set into the upper face of the dial plate 37. The lower face of the member 123 is provided with an annular wedge-shaped lip 127, the diameter of which coincides with the diameter of the cutting edge of the groove 1 cutter 46. When the punch 104 and plungers 107 and 113 have returned to their normal positions and the protector plate 58 has been formed and left within the member 123, a rotation of the dial plate 37 will bring the member 58 into the position 51 indicated on Fig. 3 of the drawings, beneath the plunger 53. The downward movement of the member 19 carries with it by means of the spring 57 the sleeve 54 which comes into contact with the upper end of the annular member 123 and owing to the greater tension of the spring 57 over that of the spring 125 the member 123 is forced downwardly so that the wedge-shaped annular lip 127

thereon will enter the annular groove 48 in the cork lining 47 and open up this groove 48 for the admission of the flange 59 of said cup-shaped protector plate 58, the plunger 53 coming into contact with the outer face of this member 58 and forcing it into the groove 48 as soon as it has been opened up by the wedge-shaped annular lip 127. The upward movement of the member 19 returns the plunger 53 and the spring-pressed members 54 and 123 to their normal positions and when this has been accomplished the cup-shaped member 40 with its cork lining and protector plate therein is free to be moved in its pocket in the dial 33 into other positions and finally delivered from said dial onto the endless chains where it is subjected to heat pressure and then a cooling blast, as has been previously described.

A strip 102 is fed from the reel 101 along the groove in the upper face of the auxiliary table 98 by means of a feeding mechanism of any well-known pinch-feed type. The reciprocating movement is given to the feeding mechanism by means of a bell crank lever 128 pivoted at 129, one arm of which is forked and supports the trunnions 130 of the upper jaw 131 of the feeding mechanism while the other arm has pivotally connected thereto a rod 132 having a bearing in an ear 133 secured to the under side of the reciprocating member 19. Beneath the ear 133 is a collar 134 secured to said rod 132, while said rod is also provided with another collar 135 above said ear between which and said collar is interposed a spring 136, which, by its tension, keeps the rod 132 in a raised position until in the downward movement of the reciprocating member 19, the ear 133 comes into contact with the collar 134 and moves the bell crank lever 128 about its pivot 129 until it engages with the shoulder 137, which forms a stop to limit the movement of the bell crank lever in that direction. On the upward movement of the member 19 the spring 136 will act upon the collar 135 to move the bell crank lever in the opposite direction until it engages the stop 138, these stops 137—138 limiting the movement of feed of the strip 102 during any single reciprocation of the member 19. During the movement of the bell crank lever 128 about its pivot toward the stop 137 the jaw 131 will be opened by the action of the ear 139 pivotally mounted upon the reciprocating member 19 coming into contact with the spring 140 resting upon the collar 141 secured to a rod 142 pivotally secured to the rearwardly extending arm of the jaw 131, said rod 142 passing through an ear 139 and being provided with a collar 143 above said ear 139 between which and said collar is interposed a second spring 144. It is obvious that the spring 144 normally retains the jaw 131 in contact with the strip of ma-

terial 102 and pinches the same between it and the fixed jaw during the forward movement of the lever 128, thus positively feeding the strip of material 102 the required distance along the groove in the auxiliary 70 plate.

This provides a very effective apparatus whereby the various elements forming the cap may be assembled together and fixedly secured in position while a protector plate 75 is formed during the same operation and fixed to the lining to the bottle cap in such position that when in use the cork lining to the cap will not be exposed to the action of the contents of the bottle to which the cap is 80 secured.

It is believed that the operation and many advantages of the invention will be thoroughly understood from the foregoing.

Having thus described my invention, I 85 claim:

1. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a flanged bottle cap containing a layer of cork; means for 90 forcing into the face of said layer of cork a metal plate, the outer edge of which is removed from the inner wall of said flange; and mechanism for moving said support and forcing means relative to each other and po- 95 sitioning them in axial alinement during the insertion of said metal plate.

2. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a flanged bottle 100 cap containing a layer of cork; means for forcing into the face of said layer of cork a flanged metal plate, the outer wall of which is separated from the inner wall of the flange on said cap; and mechanism for 105 moving said support and forcing means relative to each other and positioning them in axial alinement during the insertion of said metal plate.

3. In an apparatus of the class described, 110 the combination of a support provided with a pocket adapted to receive a flanged bottle cap containing a layer of cork; means for forcing into the center of the face of said layer of cork a metal plate of less diameter 115 than said cap, the outer edge of which is separated from the flange of said cap; and mechanism for moving said support and forcing means relative to each other and positioning them in axial alinement during 120 the insertion of said metal plate.

4. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a bottle cap con- 125 taining a layer of cork; means for forming a circular flanged metal plate; means for positioning said plate with its center centrally disposed relative to said bottle cap and means for forcing the flange of said plate into said cork. 130

5. In an apparatus of the class described, the combination of a movable support provided with a pocket adapted to receive a bottle cap containing a layer of cork; mechanism for forming a flange upon a circular metal plate; means for positioning said cap beneath said flanged plate with their centers opposite each other; and means for forcing said flange into said cork.

10 6. In an apparatus of the class described, the combination of a support provided with a pocket adapted to receive a bottle cap containing a layer of cork; a reciprocating device for cutting an annular groove in said
15 cork; mechanism for forming a flanged circular metal plate; and a device for forcing the flange of said plate into said groove.

7. In an apparatus of the class described, the combination of a movable support provided with a pocket adapted to receive a
20 bottle cap containing a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for
25 forcing the flange of said plate into said groove; and means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device.

30 8. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal
35 plate; a device for forcing the flange of said plate into said groove; and means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate forcing device.

9. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted
45 to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for
50 forcing the flange of said plate into said groove; and means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device.

55 10. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular
60 groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to
65 successively position said cap beneath said

groove-cutting device and then beneath said plate-forcing device; and means for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap.

11. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; and a series of gas jets for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap.

12. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; a series of gas jets; and means for carrying said caps over said jets to permit the heat therefrom to act upon said adhesive.

13. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; means for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap; and means for applying pressure to the cork while the adhesive is in a heated state.

14. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to

successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; means for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap; means for applying pressure to the cork while the adhesive is in a heated state; and means for cooling said cap.

15. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; means for applying heat to said cap to cause said adhesive to adhere to said cork and the inner face of said cap; means for applying pressure to the cork while the adhesive is in a heated state; and means for cooling said cap while pressure is applied thereto.

16. In an apparatus of the class described, the combination of a movable support provided with a plurality of pockets each adapted to receive a bottle cap containing a disk of adhesive and a layer of cork; a reciprocating device for cutting an annular groove in said cork; mechanism for forming a flanged circular metal plate; a device for forcing the flange of said plate into said groove; means for moving said support to successively position said cap beneath said groove-cutting device and then beneath said plate-forcing device; a series of gas jets; and a chain for carrying said caps over said jets to permit the heat therefrom to act upon said adhesive.

17. In an apparatus of the class described, the combination of a movable carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; means for supplying heat located beneath said movable carrier; and means for moving said carrier into position for the caps thereon to be acted upon by said heat.

18. In an apparatus of the class described, the combination of a movable carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; means for supplying heat located beneath said movable carrier; means for moving said carrier into position for the caps thereon to be acted upon by said heat; and means for applying pressure to said caps while said adhesive is in heated state.

19. In an apparatus of the class described, the combination of a movable carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; means for supplying heat located beneath said carrier; means for moving said carrier into position for the caps thereon to be acted upon by said heat; means for applying pressure to said caps while said adhesive is in heated state; and means located beneath said carrier for cooling said caps while under pressure.

20. In an apparatus of the class described, the combination of an endless chain carrier each link of which is adapted to support intermediate its ends a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; means for supplying heat; and means for moving said carrier into position for the caps to be acted upon by said heat.

21. In an apparatus of the class described, the combination of an endless movable carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; a plurality of gas jets for supplying heat; and means for moving said carrier into position for the caps thereon to be acted upon by said heat.

22. In an apparatus of the class described, the combination of an endless carrier each link of which is provided with a recess in its upper face intermediate its ends adapted to support a bottle cap containing a layer of cork and a disk of adhesive between said cap and cork; a plurality of gas jets for supplying heat located beneath said carrier; means for moving said carrier into position for the caps to be acted upon by said heat; and means for subsequently cooling said caps.

23. In an apparatus of the class described, the combination of an endless movable carrier provided with a plurality of recesses in its upper face each adapted to support a bottle cap containing a layer of cork and a disk of adhesive; a plurality of gas jets; a perforated air pipe for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; and means moving in unison with said carrier for applying pressure to said cork layers in said caps while passing over said air pipe.

24. In an apparatus of the class described, the combination of an endless chain carrier each link of which is provided in its upper face intermediate its ends with a recess adapted to support and position a bottle cap containing a layer of cork and a disk of adhesive; a plurality of gas jets located be-

neath said carrier; a perforated air pipe also located beneath said carrier for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; supporting guides for said carrier; and means moving in unison with and above said carrier for applying pressure to said cork layers in said caps while passing over said air pipe.

25. In an apparatus of the class described, the combination of an endless chain carrier each link of which is provided in its upper face intermediate its ends with a recess adapted to support a bottle cap containing a layer of cork and a disk of adhesive; a plurality of gas jets located beneath said carrier; a perforated air pipe also located beneath said carrier adapted to supply a blast of cold air; means for moving said carrier over said jets and then over said air pipe; perforated supporting guides for said carrier; and means moving in unison with said carrier for applying pressure to said cork layers in said caps while passing over said air pipe.

26. In an apparatus of the class described, the combination of an endless carrier provided in its upper face intermediate its ends with a plurality of recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive; a plurality of gas jets located beneath said carrier; a perforated air pipe also located beneath said carrier for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; a second carrier moving in unison with said endless carrier and provided with a plurality of pressure members adapted to enter said caps; and a pressure bar above said air pipe adapted to act on said second carrier to apply pressure to the cork layers in said caps while passing over said air pipe.

27. In an apparatus of the class described, the combination of a carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle cap containing a layer of cork and a disk of adhesive; guides therefor; a plurality of gas jets; a perforated air pipe for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; a second carrier provided with a plurality of pressure members adapted to enter said caps; a pressure bar above said air pipe adapted to act on said second carrier to apply pressure to the cork layers in said caps while passing over said air pipe; and means for adjusting said pressure bar toward and from said guides.

28. In an apparatus of the class described, the combination of a carrier provided in its upper face with a plurality of perforated recesses each adapted to support a bottle

cap containing a layer of cork and a disk of adhesive; guides therefor; a plurality of gas jets; a perforated air pipe for supplying a blast of cold air; means for moving said carrier over said jets and then over said air pipe; a second carrier provided with a plurality of pressure members adapted to enter said caps; a pressure bar above said air pipe adapted to act on said second carrier to apply pressure to the cork layers in said caps while passing over said air pipe; means for adjusting said pressure bar toward and from said guides; and mechanism interposed between said carriers to drive them in unison.

29. In an apparatus of the class described, the combination of a perforated table; a device for feeding a strip of material into position over the perforation in said table; a reciprocating punch adapted to enter said perforation and cut a blank from said strip of material; a spring-pressed plunger in said punch, with its outer end normally beyond the end of said punch but adapted to be withdrawn a limited distance within said punch; means cooperating with said punch and plunger and in axial alinement therewith to form a flange on said blank; and a rotatable member beneath said table provided with a pocket adapted to receive said blank.

30. In an apparatus of the class described, the combination of a perforated table; a device for feeding a strip of material into position over the perforation in said table; a reciprocating punch adapted to enter said perforation and cut a blank from said strip of material; a spring-pressed plunger in said punch, with its outer end normally beyond the end of said punch but adapted to be withdrawn a limited distance within said punch; a second plunger cooperating with said punch and plunger and in axial alinement therewith to form a flange on said blank; and a rotatable member beneath said table provided with a pocket adapted to receive said blank.

31. In an apparatus of the class described, the combination of a perforated table; a device for feeding a strip of material into position over the perforation in said table; a reciprocating punch adapted to enter said perforation and cut a blank from said strip of material; a spring-pressed plunger in said punch, with its outer end normally beyond the end of said punch but adapted to be withdrawn a limited distance within said punch; means cooperating with said punch and plunger to form a flange on said blank; a rotatable member beneath said table provided with a yielding annular member adapted to receive said flanged blank and provided with an annular lip on its under face; a support for a bottle cap provided

with a lining of cork having an annular groove in its face; and a reciprocating member adapted first to force said lip into said annular groove in the cork lining of said cap and then force the flange of said blank into said groove.

32. In an apparatus of the class described, the combination of a perforated table; a device for feeding a strip of material into position over said perforation in said table; a reciprocating punch adapted to enter said perforation and cut a blank from said strip of material; plungers on opposite sides of said blank for forming a flange thereon; a rotatable plate beneath said table provided with a pocket adapted to receive said flanged blank; means for depositing said flanged blank in said pocket; means for rotating said plate to position said pocket above a supported cork-lined bottle cap; a plunger above said pocket; and means for operating said plunger to force the flanged blank from said pocket into the cork lining of said cap.

33. In an apparatus of the class described, the combination of a reciprocating member; a perforated table beneath said member; a device for feeding a strip of material over and of the same diameter as the perforation in said table; a punch over said perforation moved by said reciprocating member and adapted to cut a blank from said strip of material; a spring-pressed plunger within said punch of the same diameter as the finished cap to be made from said blank; means for limiting the movement of said plunger in either direction relative to said punch; a second plunger beneath said perforation having a radius less than the radius of the upper plunger equal to the thickness of said strip of material; a pivoted lever connected to said second plunger; and a divided member between said lever and reciprocating member providing a means whereby only the latter part of the movement of said reciprocating member is imparted to said second plunger.

34. In an apparatus of the class described, the combination of a support for a bottle cap containing a cork lining; means for cutting an annular groove in said cork; means for forming a flanged metal protecting plate; means for separating the walls of said annular groove; and means for forcing said flange of said plate into said groove.

35. In an apparatus of the class described, the combination of a support for a bottle cap containing a cork lining; means for cutting an annular groove in said cork; means for forming a flanged metal protecting plate; means for separating the walls of said annular groove; and means for forcing said flange of said plate into said groove while the walls of said groove are separated.

36. In an apparatus of the class described,

the combination of a support for a bottle cap containing a cork lining; means for cutting an annular groove in said cork; means for forming a flanged metal protecting plate; a member with an annular wedge lip for separating the walls of said annular groove; and means for forcing said flange of said plate into said groove while said wedge lip remains in said groove.

37. In an apparatus of the class described, the combination of a support for a bottle cap containing a cork lining; of means for cutting an annular groove in said cork; means for forming a flanged metal protecting plate; a member with an annular wedge lip for separating the walls of said annular groove; and a reciprocating plunger for forcing said flange of said plate into said groove while said wedge lip remains in said groove.

38. In an apparatus of the class described, the combination of a rotatable dial provided with an opening therethrough; a support for said dial provided with an annular groove; a plunger in said opening adapted to travel in said groove with its top forming the bottom of a pocket adapted to receive an inverted bottle cap lined with cork; means for subjecting the cork to pressure; means for inserting a metal protector plate into said cork; and a cam in said groove adapted to lift said plunger in the rotation of said dial and remove said cap from said pocket.

39. In an apparatus of the class described, the combination of two rotatable dials, the edge of one of which projects over the edge of the other and is provided with a pocket extending therethrough adapted to receive a protector plate, while the edge of the other is provided with a plurality of pockets each adapted to receive a bottle cap lined with cork; a reciprocating member above said dials; pins on said member for preventing the rotation of said dials during the reciprocation of said member; a cutter on said member for cutting an annular groove in said cork; means for supplying a protector plate to the pocket in the upper dial; and means secured to said reciprocating member for forcing said protector plate from said pocket into said cork.

40. In an apparatus of the class described, the combination of two rotatable dials, the edge of one of which projects over the edge of the other and is provided with a pocket extending therethrough adapted to receive a protector plate, while the edge of the other is provided with a plurality of pockets each adapted to receive a bottle cap lined with cork; a reciprocating member above said dials; pins on said member for preventing the rotation of said dials during the reciprocation of said member; a cutter on said

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member for cutting an annular groove in said cork; means for supplying a protector plate to the pocket in the upper dial, means secured to said reciprocating member for forcing said protector plate from said pocket into said cork; and means for expelling said caps from said pockets.

Signed by me at 4 Post Office Sq., Boston, Mass., this 10th day of April, 1909.

GEORGE M. C. NIELSEN.

Witnesses:

WALTER E. LOMBARD,
HOWARD HANSCOM.

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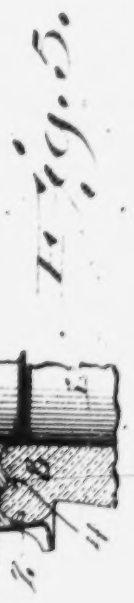
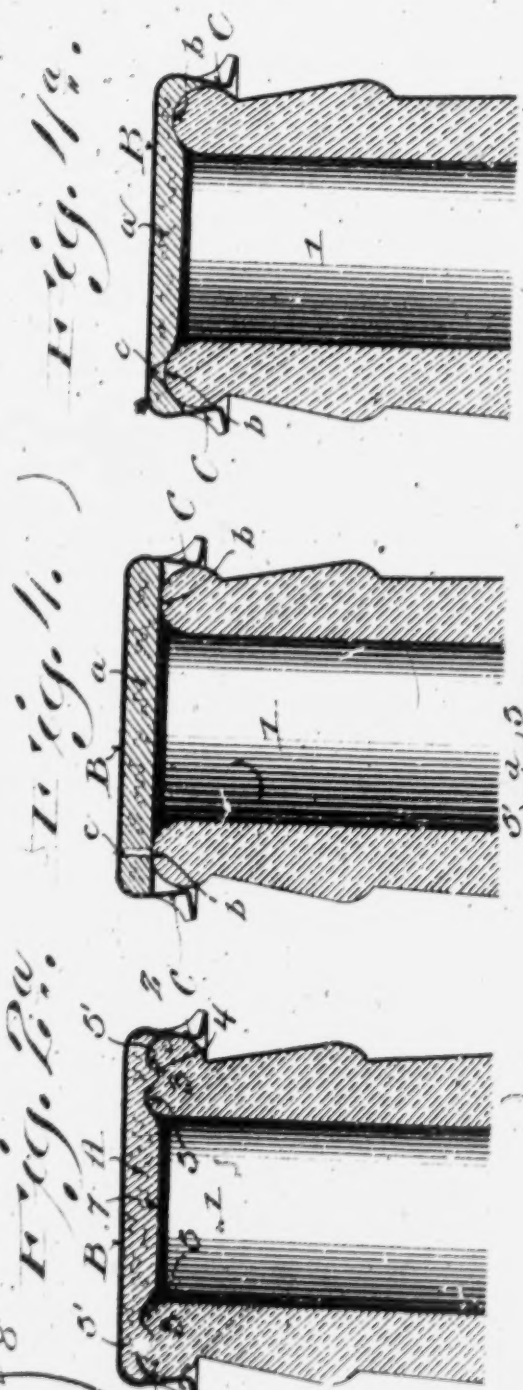
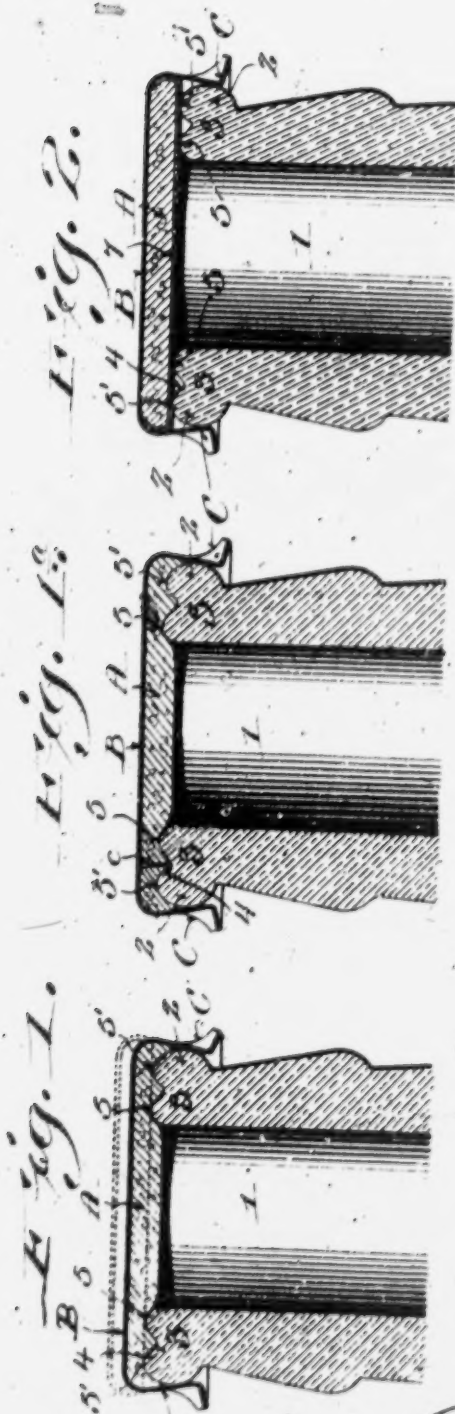
1659

G. F. KNOX.
CROWN CORK SEAL.

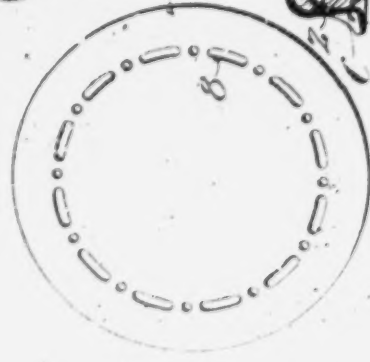
APPLICATION FILED MAR. 6, 1913. RENEWED JAN. 13, 1915.

1,129,578.

Patented Feb. 23, 1915.



W. H. Woodcock
Charles F. Knox
Manufacturers



Witness:
George F. Knox
Charles F. Knox
Witness

UNITED STATES PATENT OFFICE.

GEORGE F. KNOX, OF MILWAUKEE, WISCONSIN.

CROWN-CORK SEAL.

1,129,578.

Specification of Letters Patent.

Patented Feb. 23, 1915.

Application filed March 6, 1913, Serial No. 752,370. Renewed January 13, 1915. Serial No. 2,071.

To all whom it may concern:

Be it known that I, GEORGE F. KNOX, a subject of the King of England, and resident of Milwaukee, in the county of Milwaukee and State of Wisconsin, have invented certain new and useful Improvements in Crown-Cork Seals; and I do hereby declare that the following is a full, clear, and exact description thereof.

The primary object of my invention is to provide simple means for increasing the efficiency in sealing vessels wherein the crown cork type is employed, such increased efficiency being at the same time accomplished without increasing the cost of manufacture.

Specific objects of my invention are to provide two or more annular contact points about the mouth rim of a vessel or bottle, which points are adapted to be engaged by the cork disk that is employed in conjunction with the standard metallic crown, whereby the contact points referred to constitute a multiple seat which will thus insure the desired hermetic seal, and to provide a non-porous facing sheet for the cork disk, wherein the seal is employed in bottling mineral waters, charged beverages or the like, the facing sheet serving to prevent contact of the liquid with the cork body and its consequent detrimental effects.

With the above and other minor objects in view the invention consists in certain peculiarities of construction and combination of parts as set forth hereinafter with reference to the accompanying illustrations and subsequently claimed.

In the drawings Figure 1 represents an enlarged sectional elevation of a bottle-head and cap-closure therefor embodying the features of my invention; Fig. 1^a, a similar fragmentary section, the section being taken upon a line intersecting a pore of the cork filler to more clearly illustrate the effect of closing said pore incidental to pressure being applied to the cap; Fig. 2, a similar fragmentary sectional view of a cap closure embodying the features of my invention, showing the application thereto of a pliable facing sheet, whereby the cork is insulated from the liquid contained within the bottle; Fig. 2^a, a similar sectional view illustrating the cap-closure after it is subjected to pressure and expansion by heat, whereby the facing sheet is separated at the point subjected to the greatest strain; Fig.

3, a fragmentary plan view of one form of pliable facing sheet embodying the features of my invention; Figs. 4 and 4^a, fragmentary sectional views exemplifying a sealing operation wherein a standard type of crown cork and bottle is employed, the said views illustrating the effect produced upon a porous cork in conjunction with the rim of a bottle having a single point of contact, and Fig. 5, a sectional view of another form of my invention.

Referring to the exemplification of the prior art as illustrated in Figs. 4 and 4^a of the drawings, in ordinary crown corking and sealing it has been found in practice that owing to the spongy or porous consistency of the cork disk *a* when said disk is subjected to sufficient pressure upon the high face *b* of the curved rim of a bottle-head, the said curved rim constitutes a single point of contact or ridge. In such cases the tendency of the cork disk is to break or open at the point of contact and thus the seal is rendered imperfect, resulting in a large percentage of the bottled product being damaged by exposure to atmospheric conditions. Thus it will be seen that unless the face of the cork be absolutely perfect, the single contact point of its engagement with the rim of the bottle will not effect a hermetic seal. This tendency of the cork disk to break at the seating point or ridge is still further increased should a hole *c*, constituting one of the pores of the disk, be aligned with the seating point, in which instance the pressure and expansion or swelling of said disk due to steaming, tends to open up or exaggerate the pore, causing breakage of the disk at this weakened point, whereby leakage will occur about the mouth-rim as indicated by the arrow in Fig. 4^a. Thus the purpose of my invention is to overcome the above objections and supply a multiplicity of seating faces whereby, should a hermetic seal not be effected by the first one of the seating faces or beads, the leakage will be cut off by one or the other of the auxiliary contact points, there being, preferably three in number.

Referring by characters to the drawings, Figs. 1 to 3 inclusive, 1 represents a portion of the neck and head of a bottle, and 2 the crown-bead thereof, which bead merges into a rim 3 that is formed about the bottle mouth. The rim 3, as shown, is provided

with an intermediate annular V-shaped groove 4, which groove divides said rim into parallel inner and outer semicircular beads 5 and 5' constituting high smooth points of contact. Hence it will be seen that the rim face is formed with a centrally disposed V-shaped annular groove, the inclined walls of which are tangentially merged into the opposite inner circular walls of the beads, whereby the high surfaces are smoothly rounded and are joined by the tangential faces constituting the wall grooves.

A represents a standard cork disk that is seated within the usual metallic crown B, the apron C of which crown is adapted to be contracted about the mouth rim 3 by subjecting the crown to inward pressure through a suitable die, co-incident with a downward pressure thereof, this capping operation being ordinarily employed and forms no part of my invention.

In Fig. 1 the cork disk A is shown in dotted lines, in the position it assumes prior to pressure being applied thereto, with its lower face resting upon the high points or beads of the mouth rim, the formation assumed by said disk, after it is subjected to pressure, being shown in full lines in said view. Hence it is apparent that when the cork disk is expanded it will fill out all the crevices about the face of the rim, whereby it is forced snugly down into the groove 4 and also about the walls and high points of the rim beads 5 and 5', whereby three distinct points of contact between the rim and cork will result and owing to the fact that the center point of contact is upon a lower or different plane than that of the inner and outer contact points, a perfect hermetic seal will result. This seal is rendered impregnable due to the fact that should the first or inner seal between the ridge 5 and cork be defective further leakage of gases or liquid will be cut off by the base of the groove, which forms a central seal in connection with the expanded cork. It follows that should this seal in turn be defective that the outer seal between the cork and ridge 5 would produce the desired results, making in all a triple seal which for practical purposes is sufficient to insure perfect bottling under the most disadvantageous conditions.

It is obvious that, owing to the uninterrupted high and low surfaces of the rim, when the crown cork is expanded in the usual manner by heat, the particles of the swollen cork are capable of flowing in both directions over the semicircular beads to fill the V-shaped groove without any tendency of breaking the cork member.

To prevent the contamination of mineral waters or the like through contact with the cork disk I provide a pliable facing sheet 7 for the disk as shown in Fig. 2, the same being preferably composed of tinfoil or like

substance and is of an approximate diameter corresponding to the diameter of the disk, being shown lapped about its edges.

As shown in Fig. 2, when the crown and cork disk, equipped with the metallic facing sheet, is inserted over the mouth of the bottle and thereafter subjected to pressure, as shown in Fig. 2^a, the result of said pressure and steaming will cause the cork to swell downwardly to fill the annular groove 4 as previously stated. It is apparent that such downward swell of the cork within the groove will cause the facing sheet 7 to break at this point due to the fact that the high ridges 5 and 5' on either side of the groove have, in conjunction with the cork disk, effected a double grip upon said facing sheet. When this separation of the facing sheet takes place the cork fiber at the base of the groove is exposed, whereby a seal is effected at this point between the naked cork and vitreous material from which the bottles or vessels are ordinarily formed. It is also apparent that while a cork joint is effected at the center of the rim, the remaining two high points of contact formed by the ridges 5 and 5' are sealed metallically by the interposed surfaces of the facing sheet, the inner metallic seal being sufficient to prevent the leakage of liquid from the vessel or its contact with the cork surface, whereby acids are generated incidental to the exposure of the cork fiber with said liquids.

As shown in Fig. 3, I may, in some instances, provide the pliable metallic facing sheet 7 with some form of circular perforation 8 adjacent to its edge or otherwise score the sheet in such manner that it will separate under pressure and expansion of the cork, upon the weakened line, the separation leaving the facing sheet in the form of a disk, the edges of which are gripped by the ridge 5 and a detachable ring portion 8' will form a metallic outer sealing joint in conjunction with the ridge 5'.

Referring to Fig. 1^a of the drawings the cork disk is illustrated as having a hole or pore *c* therein, which pore is centrally alined with relation to the rim-groove 4. In this position the pore *c* referred to will tend to close up under the compression and steaming operation incidental to capping the bottle, due to the fact that the fiber of the cork in expanding into the groove, will flow downward as indicated upon opposite sides of said pore, thus tending to contract the same instead of expanding as in instances previously described wherein a pore of the cork is inadvertently alined with the single compression point of a bottle rim.

It is also apparent, as shown in Fig. 5, that the crown cap may be formed with a circular male bead *d* which will forcibly mold the cork disk downwardly into the

groove 4 of the vessel mouth rim. In this instance the cork disk is made in the form of a ring a' and the center portion of the crown B is depressed in such manner that when the closure is seated against the bottle rim the depressed metallic portion of the crown enters the mouth of the bottle and thus the disk a' or gasket is housed whereby fine particles of the cork which would tend to slough off are prevented from dropping into the liquid. The depressed portion of the crown cap also serves to present a metallic face to the liquid which is desirable as previously stated when the container is used in connection with mineral waters or the like.

I claim:

1. A vessel for crown corks having a mouth-rim provided with a closure seat comprising inner and outer semicircular beads, and a centrally disposed annular V-shaped groove, the oblique side-walls of the groove being tangentially merged into the opposite

inner terminals of the semicircular beads, whereby a crown cork is capable, when expanded, of unobstructedly flowing in opposite directions about the semicircular beads into the V-shaped groove to fill the same. 25

2. A seal-joint comprising a vessel-mouth provided with a rim, a plurality of spaced annular sealing surfaces formed in the rim, a cap-inclosed sealing disk adapted to be seated upon the rim, and a pliable metallic facing sheet for the disk interposed between said disk and seating surfaces of the rim, the said sheet being weakened upon a line intermediate of the seating surfaces. 30 35

In testimony that I claim the foregoing I have hereunto set my hand at Milwaukee, in the county of Milwaukee and State of Wisconsin, in the presence of two witnesses. 40

GEORGE F. KNOX.

Witnesses:

CLEO W. YOUNG,
M. E. DOWNEY.

F. RECHT.
CAP FOR BOTTLES.
APPLICATION FILED MAR. 23, 1905.

Fig. 1.

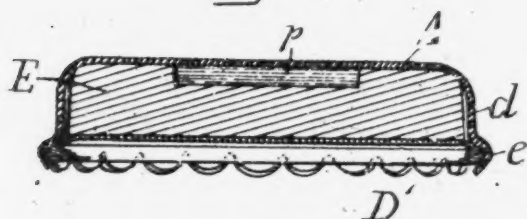


Fig. 2.

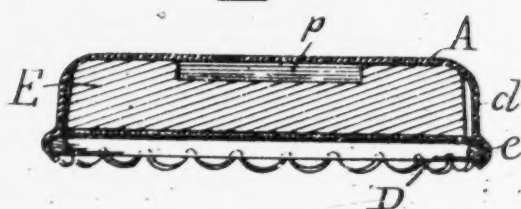


Fig. 3.

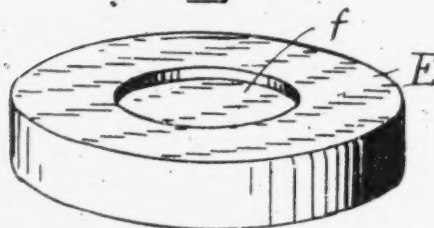


Fig. 4.



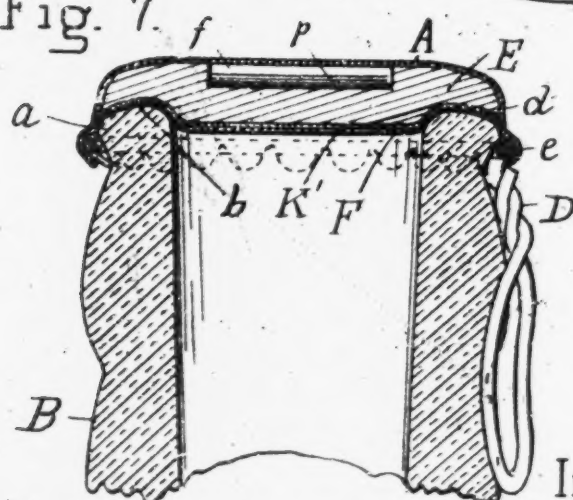
Fig. 5.



Fig. 6.



Fig. 7.



Witnesses:

Chas. L. Curtis
Oscar H. Goodell

Inventor,

Frederick Recht,
by *Samuel W. Balch*
Attorney

UNITED STATES PATENT OFFICE.

FREDERICK RECHT, OF NEW YORK, N. Y., ASSIGNOR TO REX CAP AND CORK COMPANY, OF NEW YORK, N. Y., A CORPORATION OF NEW YORK.

CAP FOR BOTTLES.

No. 796,356

Specification of Letters Patent.

Patented Aug. 1, 1905.

Application filed March 23, 1905. Serial No. 251,697.

To all whom it may concern:

Be it known that I, FREDERICK RECHT, a citizen of the United States of America, and a resident of the borough of Brooklyn, in the city of New York, county of Kings, and State of New York, have invented certain new and useful Improvements in Caps for Bottles, of which the following is a specification.

This invention is an improvement upon that class of bottle-sealing devices wherein one side of a suitable sealing medium in the form of a flat disk is held in sealing contact with the mouth of a bottle by means of pressure which is maintained against the opposite side of the disk. This pressure is maintained, preferably, by a metal cap, which is locked to the bottle in some suitable manner. The cap is usually formed of tinned iron, commonly known as "sheet-tin," as this possesses the requisite strength, can be readily formed to the required shape, provided with suitable locking devices, and is the least expensive material which possesses these properties to the required degree. The disk, which is the sealing medium and has heretofore usually been of cork, must have several properties—namely, first, compressibility and elasticity—that is to say, elasticity of volume—so that it will readily conform to the mouth of the bottle and maintain a sealing contact; second, tenacity and a sufficiently-uniform structure without exceptionally hard or soft spots and free from cracks or pores; third, resistance to solubility or chemical reaction, which would cause it to taint such liquids as are to be placed in the bottle. These are properties which are present to a sufficient degree in cork only in carefully-selected cork disks and then but partially.

The object of this invention is to secure these properties in whole or in part by suitable substitutes for cork, which possess the above-recited properties in a greater degree and are less expensive. These properties are embodied in a composite disk, wherein the first-named property (elasticity of volume) is provided by a disk, preferably of wood. The second-named property (tenacity) is embodied in a metal having the requisite tenacity and uniform structure, and the third-named property (insolubility) requisite in the material which makes the actual sealing contact with the mouth of the bottle is provided in the selection of the tenacious metal when this is

practicable and when not practicable or economical by a facing of foil, which for economy must be used in such thin sheets that it is wanting in the necessary tenacity.

Suitable compressible material, such as vegetable fiber, as cork or wood, is employed as a part of the structure to enable the cap to conform with more certainty to the mouth of the bottle, as such substances possess the required property of elasticity of volume; but they possess this property to the desired degree usually only when saturated with some moistening material the presence of which causes the fiber to swell and the withdrawal of which results in a shrinkage of the fiber. As the latter, if taking place after a cap has been attached to a bottle, would cause the cap to leak, provision for the prevention of such drying is desirable; and it is a further object of my invention to prevent such drying by so constructing the cap that the compressible material is wholly inclosed by metal by reason of the tenacious metal disk being made of such diameter that its periphery will lie in contact with the flange of the cap.

It is also an object of my invention to provide for the further moistening of the compressible material after the application of the cap by the provision of a recess in the compressible material, within which a suitable moistening material in solid form is contained and which will be fused and be absorbed by the compressible material when the bottle is steamed.

In the accompanying sheet of drawings, which forms a part of this application, Figure 1 is a vertical section through a cap in which the disk of metal which affords the requisite tenacity is also the sealing-disk in contact with the mouth of the bottle. Fig. 2 is a vertical section through a cap in which the disk of tenacious material is faced with foil and the foil makes the sealing contact with the mouth of the bottle. Fig. 3 is a perspective view of a disk of wood, which is the disk of compressible and absorbent material preferably employed in the cap. Fig. 4 is a perspective view of the disk of tenacious and insoluble metal employed in the form of caps shown in Fig. 1. Fig. 5 is a perspective view of the disk of tenacious metal employed in the form of caps shown in Fig. 2. Fig. 6 is a perspective view of the disk of foil employed in the form of caps shown in Fig. 2. Fig.

7 is a vertical section through a cap and the mouth of a bottle to which the cap is applied.

The invention is illustrated in connection with a bottle-cap of the general type heretofore patented by me in United States Letters Patent No. 646,627, dated April 3, 1900, and modified as set forth in my pending application for Letters Patent of the United States, Serial No. 223,087, filed September 2, 1904.

The cap A is formed conveniently of tinned iron, preferably of a thickness of about twelve thousandths of an inch for ordinary bottles requiring a cap of about one and one-eighth inches in diameter and applied to the mouth of a bottle B. The bottle-mouth is formed with an outwardly-projecting lip a, which surrounds the outer periphery of the mouth of the bottle. The cap has a depending flange d and a bead e, with an inwardly-facing angular groove formed around the lower margin of the depending flange. A wire D is placed in the groove, and when the cap is placed on the bottle the wire partly underlies the lip of the bottle, and the consequent engagement of the bead with the lip of the bottle, preferably through the interposed wire, securely holds the cap over the mouth of the bottle.

In the form shown in Fig. 1 two disks are employed within the metal cap, so that when the cap is placed over the mouth of a bottle they will be interposed between the cap and the mouth of the bottle. One of the disks is of an absorbent compressible material E, for which I find a soft close-grained wood, such as basswood, well adapted. This wood is preferably employed in a moist form, being saturated with melted paraffin, glycerin, or a heavy oil or other substance which is comparatively non-drying, lubricating in character, and not destructive of the fiber. A recess f is shown in the disk in which a reserve supply of the moistening material, preferably in solid form, as paraffin p, is placed, where it will be melted and absorbed by the wood after the cap has been placed on the bottle during the usual process of steaming the bottle. The disk of compressible material may be of other substance than of wood, as good sealing can be effected when the disk is of ground-cork sheeting, as linoleum, or thick pasteboard or rubber. The other disk K within the metal cap is of a suitable metal—as zinc, aluminium, tin, or alloy—which will not be attacked or dissolved or noticeably taint the contents of the bottle. It is of such thickness, usually three to five thousandths of an inch, and of such tenacity that when the requisite pressure is applied for affixing the cap and the metal disk is clamped between the wood disk and the mouth of the bottle the metal disk will properly fold and adjust itself to the mouth of the bottle without tearing and effect a proper sealing contact. The metal disk is of greater diameter when flat than the inside of the vertical part of the

flange of the cap, and its entire periphery is in contact with the flange, so that when the cap is placed on the bottle and the disk somewhat corrugated in conforming to the mouth of the bottle and driven within the vertical part of the flange of the cap the periphery of the disk will still be in contact with the flange, thereby sealing the disk of wood in the cap so that no part of the wood will be exposed to changing air, and drying of the wood will thereby be prevented. The disk also prevents the ingress and egress of water, which would otherwise gain access in the process of steaming, for water by reason of the readiness with which it evaporates and the difficulty of retaining it in uniform amount in the fibers of the wood is less suited than other substances above named as a moistening material.

In the form shown in Fig. 2 a tenacious metal disk K', which in this form need not be of an insoluble material, is faced with foil F, preferably of pure tin or tin alloy, which is not attacked or dissolved by the contents of the bottle. In this structure the tenacious metal disk is of importance, as it supports the foil and relieves the foil of such strain as would cause it to tear if it were in direct contact with the wood. The unqualified expression "a tenacious metal disk" is therefore to be understood, broadly, as inclusive both of the structure of Fig. 1, wherein the property of tenacity is present in a metal suited for direct sealing contact and exposure to the bottle contents, and in the structure of Fig. 2, wherein the tenacious metal disk is composite and consists of two metals, one of which imparts to the disk the requisite tenacity and the other of which has properties which render it suitable for direct sealing contact.

As compared with bottle-caps in which well-selected cork is the sealing medium a somewhat greater pressure is requisite in capping bottles with caps constructed in accordance with this invention to make the aluminium disk conform to the irregularities of the bottle-mouth and be brought into proper sealing contact therewith. However, this pressure is no greater than is required in effecting the locking engagement of the cap and bottle with the form of lock herein set forth by the method of applying pressure to the bead for the double purpose of first effecting the sealing engagement and then turning the bead inwardly to carry it and the locking-wire into engagement with the lip of the bottle, as set forth in my application for Letters Patent of the United States, Serial No. 223,088, filed September 2, 1904, for a machine for applying caps to bottles. The strain of this pressure is transmitted through the flange, which is a separate element from the sealing-disk, of greater tensile strength by reason of the employment of a metal either of greater unit strength or greater thickness, or both.

The tin cap and the interposed disk of compressible material have a further function in shielding the sealing-disk when on the bottle.

What I claim as new, and desire to secure by Letters Patent of the United States, is—

1. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a tenacious metal disk contained within the cap, and a disk of compressible material interposed between the cap and metal disk, the whole organized to effect a sealing contact between the metal contained in the cap and the mouth of the bottle.

2. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a tenacious metal disk contained within the cap, a facing of foil for the disk, and a disk of compressible material interposed between the cap and tenacious metal disk, the whole organized to effect a sealing contact between the foil and the mouth of the bottle.

3. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a metal disk the periphery of which is in contact with the flange of the cap, a disk of absorbent compressible material and a suitable moistening material, the disk of the compressible material and moistening material being wholly inclosed by the cap and metal disk.

4. The combination with a metal cap adapted to be locked over the mouth of a bottle, of a metal disk contained within the cap, a disk of absorbent compressible material provided with a recess and a suitable moistening material in solid form but fusible at a low temperature contained within the recess, the disk of compressible material and moistening material being wholly inclosed by the cap and metal disk.

5. The combination with a bottle, of a metal

cap adapted to be locked over the mouth of the bottle, a tenacious metal disk contained within the cap, and a disk of compressible material interposed between the cap and metal disk, the whole organized to effect a sealing contact between the metal contained in the cap and the mouth of the bottle.

6. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a tenacious metal disk contained within the cap, a facing of foil for the disk, and a disk of compressible material interposed between the cap and tenacious metal disk, the whole organized to effect a sealing contact between the foil and the mouth of the bottle.

7. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a metal disk the periphery of which is in contact with the flange of the cap, a disk of absorbent compressible material and a suitable moistening material, the disk of the compressible material and moistening material being wholly inclosed by the cap and metal disk.

8. The combination with a bottle, of a metal cap adapted to be locked over the mouth of the bottle, a metal disk contained within the cap, a disk of absorbent compressible material provided with a recess and a suitable moistening material in solid form but fusible at a low temperature contained within the recess, the disk of compressible material and moistening material being wholly inclosed by the cap and metal disk.

Signed by me at New York, N. Y., the 21st day of March, 1905.

FREDERICK RECHT.

Witnesses:

SAMUEL W. BALCH,

CHARLES H. O. JACKSON.

BLANK

PAGE

1668
1946

DEFENDANT'S EXHIBIT A A A A

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records
of this office of the File Wrapper, Contents and Drawing,
in the matter of the

Pending Application of

Albin H. Warth.

Filed November 7, 1930,

Serial Number 494,201,

Renewed February 1, 1934,

for

Improvement in Bottle Cap Spot Material.

IN TESTIMONY WHEREOF I have hereunto set my
hand and caused the seal of the Patent Office to be
affixed, at the City of Washington, this first
day of March, in the year of our Lord one
thousand nine hundred and thirty-five and of the
Independence of the United States of America the
one hundred and fifty-ninth.

ATTEST:


Develan
Chief of Division

Conning P. Cox
Commissioner of Patents.

1668

1947 1669

NUMBER (Series of 1925)

494201

DIV.

50 50

PATENT NO.

1930

DATED

(EX'R'S BOOK)

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12

1-24-11

25-11

Name

ALBIN H. WARTH

Asso. to Crown Cork & Seal Company Inc. of Boston
Mass. a corp of New York

BALTIMORE

MARYLAND

BOTTLE CAP SPOT MATERIAL

ORIGINAL

APPLICATION FILED COMPLETE NOV 7, 1930

Division, Specification, &

Oath, First Fee \$5.00 NOV 7, 1930

Receipt 6/14/31

RENEWED

FEB 1 1934

\$3.0

FEB 1 1934

Division of App. No. 159743

Examined and passed for Issue Feb 2, 1933

By Commissioner

Notice of Allowance Feb 2, 1933

Final Fee 193

By Commissioner

Associate Attorney

Examined and passed for Issue OCT 5 - 1934

By Commissioner

Notice of Allowance OCT 5 - 1934

Final Fee 193

By Commissioner

No. of Claims Allowed 2 of 15 Print Claims 2

Title as Allowed Bottle Cap Spot Material

In O. C. Class 91-62

7

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U. S. Patent Office

Application for ^{Sec'd} H. S. Letters Patent

494201

CUSHMAN, BRYANT & DARBY
ATTORNEYS AT LAW
COUNSELORS IN PATENT CAUSES
WASHINGTON LOAN & TRUST BLDG.
800 F STREET, NORTHWEST
WASHINGTON, D. C.

MAIL DIVISION
NOV - 7 30
RECEIVED
U. S. PATENT OFFICE

Petition

On the Honorable Commissioner of Patents
Washington, D. C., U. S. A.

Your petitioner, Albin H. Warth

A citizen of the United States,

residing at Baltimore in the State of

Maryland and whose post-office address is

c/o Crown Cork & Seal Co., Inc., Baltimore, Maryland.

pray B that Letters Patent may be granted to

him for the improvement in

Bottle Cap Spot Material

set forth in the annexed specification.

And he hereby appoints CUSHMAN, BRYANT & DARBY, a firm composed of Arlon V. Cushman, Arthur L. Bryant and John J. Darby, A. of the City of Washington, District of Columbia, whose register number is 7196, his attorneys, with full power of substitution and revocation, to prosecute this application, to make amendments therein, to sign his name to the drawings, to receive the Letters Patent, and to transact all business in the Patent Office connected therewith.

Albin H. Warth

(Write last name in full.)

Specification

To All Whom it May Concern

Be it Known, that I, Albin H. Warth

a citizen of the United States,

residing at Baltimore in the State of

Maryland

have invented new and useful

improvements in

Bottle Cap Spot Material

of which the following is a specification:

1671

1949

Paragraph 1
This invention relates to a method of producing closures of the type in which a sealing disk has a facing. *ad'*

This application is a division of my co-pending application, Serial No. 159,745, filed January 7, 1927.

Paragraph 2
Closures of the well known crown cork type comprise a metal shell having a skirt and a resilient sealing disk usually made of cork. For some uses, the sealing disks are given a facing, e. g. tin foil, or aluminum foil. Ordinarily this facing is of smaller diameter than the cork disks and such crowns are known in the trade as "spot center crowns".

These spot center crowns have been produced in various ways. According to one method a slot or groove is cut in the cork disk and the spot is given an inturned rim which is inserted in the slot. This method is objectionable because of its expense and because the tin foil spots are apt to drop out. According to another method the spots are pasted to the cork disks by a casein paste

1672

1950

or a glue. In crowns so made the spots tend to loosen as the paste or glue is attacked by the packages liquids. Furthermore, such method involves difficulties in handling and in applying the paste or glue. According to still another method, the spots are secured by an underlying and separately formed and deposited tissue of gutta percha or coated paper. In crowns so made, like objections are met with. *2A³*

*4th Ex
Quart A³*

It is an object of the present invention to provide a method of producing spot center crowns such that the spots are easily and economically secured to the sealing disks and such that they are firmly secured and not liable to become loosened in use.

With these general objects in view, the invention consists in the method which will be first described and then more particularly pointed out in the claim.

According to the method of the present invention, the strip material, such as metal foil, is coated with a substance that is devoid of tackiness when dry and has adhesive qualities when soft. In carrying out the method according to what is considered the best practice, the adhesive substance is such that it can be applied cold, i. e. at room temperatures, and is insoluble in cold water. While various materials may be used, I have found a suitable adhesive in a solution of damar ~~gum~~ ^{resin} and rosin in Mineral spirit or turpentine, to which is added 5% or less of a vegetable oil, such as soya bean or china-wood oil. The damar gum and rosin may be in the proportion of 35% to the whole. The adhesive may have a drier of lead resinate or the like in a proportion of 2% or less. *4, B'*

Per C

*6' 1/2
Quart B'*

While the coating may be applied to the material

1673
1951

Insert A⁴

in various ways, it is conveniently applied in fluid form and cold to a strip of foil from which the spots are to be cut. ^{As} In this connection it is noted that the spots may be conveniently assembled by feeding a strip of material over successive crown corks and cutting out a disk which is deposited on a cork, such assembling machinery being known in the art.

P. C

After the coating is applied to the material, it is dried. While this may be effected by air drying at room temperatures, it is more rapidly accomplished at a temperature of about 300° F maintained for about ^{three} ~~thirty~~ minutes. When dried the coating is devoid of tackiness so that the metal foil may be handled without difficulty or trouble. This is particularly advantageous when the metal foil is to be fed in strips because the application of the adhesive is carried out independently of the assembling steps. Moreover, the coating gives the thin metal foil more or less body, which facilitates feeding and cutting.

Insert A⁵

^{As} In case the metal foil is fed in a strip, spots may be cut out and deposited on the sealing disk, as above set forth.

Insert A⁶

At the time of assembly the coating material is softened to render it adhesive and the assembled unit is subjected to pressure. In carrying out the invention according to what is now considered the best practice, the coating will be softened by heat after the crown is assembled. ^{As} This may be accomplished in any suitable manner, as by a heated plunger or a plunger and heated table. The heat softens the coating and renders it adhesive and the pressure serves to unite the spot to the cork.

Insert A⁷

The assembled unit is then cooled and the cooling may advantageously be coupled with pressure, for example,

1674

1952

by a plunger. Cooling may be effected in any suitable manner, being carried out to the congealing point of the coating material.

It may be desirable to secure the spot in position, prior to the heat and pressure steps, sufficiently to prevent dislodgement of the spot during any interval between assembling and final sticking. This may be accomplished, for example, by preheating the assembled crown, to soften the coating, as soon as the metal foil spot is deposited. ~~On the coating may be softened by moistening slightly with a solvent, such as benzol.~~ In either case the coating becomes tacky enough to hold the metal foil spot from getting out of position during ordinary passage through assembling apparatus.

The resulting crown has a firmly secured metal foil spot which is not liable to become loose in use, owing to the fact that the adhesive substance is not soluble in liquids more commonly sealed by crown corks. Moreover, when the metal foil is assembled with the sealing disk, it is already prepared for being stuck in place, the sticking being accomplished by the simple application of heat and pressure. The coating operation is a simple one and the coated metal foil is easily handled because the dry coating is not tacky.

1675

1953

I CLAIM:-

ln B
Sub 6²
ln A/B
B
As a new article of manufacture, ^{*highly flexible*} laminated material
in sheet or strip form for the spotting of cushion disks
~~of caps~~ ^{*adapted continuous*} and comprising ^{*flexible and acid-resistant*} a layer of waterproof adhesive,
which is hard at room temperature ^{*adapted to adhere to a cork disc and*} but fuses upon the
^{*sheet like facing*} application of heat, and material to which said adhesive
^{*continuous*} is bonded to form a coating, said material being impervious
to moisture and ~~acid-resistant~~, thereby providing laminated
sheet or strip material from which laminated spots or fac-
ings may be punched for assembly with cap disks and adapted
to be united with the disks by the mere application of
heat and pressure.

1676

1954

In testimony whereof, I have hereunto set my hand

Albin H. Warth

(Write first name in full.)

OathCity of BaltimoreState of MarylandI, Albin H. Warth,the above-named petitioner, being duly sworn, depose and say that I am a citizen of the United States, and resident of Baltimore, Marylandand that I verily believe myself to be the original, first, and sole inventor of the improvement in Bottle Cap Spot Material

described and claimed in the annexed specification; that I do not know and do not believe that the same was ever known or used before my invention or discovery thereof; or patented or described in any printed publication in any country before my invention or discovery thereof or more than two years prior to this application; or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by me or my legal representatives or assigns more than twelve months prior to this application, and that no application for patent on said improvement has been filed by me or my representatives or assigns in any foreign country.

Albin H. Warth

(Write first name in full.)

Sworn to and subscribed before me, this

6th day of November 1930

Forencell Deakins

(Notary sign here.)

Notary Public.

[SEAL]

MY COMMISSION EXPIRES MAY 4, 1931.

Acknowledgment should be made before a Notary Public, WHO MUST AFFIX HIS SEAL. If Notary has no seal, a certificate of the Judge or Clerk of the Court showing that the Notary is qualified, must be attached. If the oath is taken before a Justice of the Peace, a certificate of the Judge or Clerk of the Court showing that such Justice is qualified, must be attached.

1677
1955

Rev. 56 Form 311

Address only
"The Commissioner of Patents,
Washington, D. C."
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Page No. 2

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

RSC/jmk
Please find below a communication from the EXAMINER in
charge of this application.

Thomas E. Robertson
Commissioner of Patents

April 27, 1931

Applicant: Albin H. Werth

Cushman, Bryant & Darby,
Loan and Trust Bldg.,
Washington, D.C.

Ser. No. 494,201
Filed Nov. 7, 1930
For Bottle Cap Spot Material

MAILED
APR 27 1931

This case has been examined.

The following references are made of record:

Koch	1,238,156	Aug. 28, 1917	154-45.5-Bottle
Marsa	1,603,786	Oct. 19, 1926	
Kronstein	799,065	Sept. 1905	134-26
(British) Hays	3,572	Feb. 13, 1912	

The claim is rejected as obviously fully met by the above
cited patents to Koch and Marsa.

The Kronstein and Hys patents are cited to show that the
applicant's particular type of adhesive is old.

This case appears devoid of invention and should be pre-
pared for a final action.

IPSC

F. H. Porter
Examiner.

Rev. 56

Address only
"The Commissioner of Patents,
Washington, D. C."
and not any official by name

RSC/jmk
Please find below
charge of this app

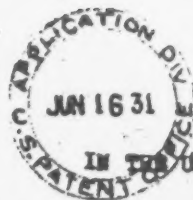
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IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,
BOTTLE CAP SPOT MATERIAL,
Filed November 7, 1930,
Serial No. 494,201.

Div. 56.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We hereby authorize and request entry of the following
amendments in the above entitled application.

Please enter the accompanying drawing.

IN THE SPECIFICATION

Page 2

a
Line 5 insert the following: - This type of closure
is characterized by the provision, upon the interior cushion or
sealing disc, of a facing or spot having a surface which protects
the cushion material from the liquids and gases.

a²
Line 10 before the period insert --, these materials
or other materials of protective character being suitable to
provide a non-absorbent, gas impervious, and acid resistant
facing.

Page 3

a³
Line 8 after the period insert the following: - For
example, one difficulty in applying discs made from separate
strips, such as gas and acid resistant material and the adhesive
tissue strips, has arisen from the necessity for feeding the
two strips to the punching and assembly machine. There is not

only difficulty in feeding the strips, but in cutting the separate tissue strip with a clean, sharp edge so as to insure the binding stratum of adhesive being coextensive in area with the disc of liquid resistant material. As will be understood, the adhesive stratum is intended to act not only as a cement, but also as a waterproof, non-absorbent, gas impervious medium for avoiding the possibility of the contents of a bottle getting between the facing disc and the material of the cap, either the metal shell itself or a cushion disc of cork or composition cork.

Furthermore, when using superimposed strips of the facing material and of adhesive tissue, it was essential, to bond the adhesive tissue to both the material of the cushion disc in the cap and the facing material.

a³ In preparing the rolls of facing material and adhesive tissue, the practice usually followed was to form a roll of the tissue in strips of the desired width, and to unwind this roll and a roll of the facing material while feeding the two strips one over the other into the disc forming and assembling machine. This is a troublesome and expensive operation, because of the frequent breakage of the adhesive tissue and the necessity for using fairly heavy tissue to minimize this tendency. This is due partly to the fact that the facing material was substantially non-elastic, while the adhesive tissue possessed a certain degree of elasticity, thus introducing a factor of difficulty in securing a uniform paying of both the facing strip and the gutta percha tissue strip.

It is desirable, in the use of facing disks of the character above referred to, that the adhesive stratum be as thin as possible, and yet be continuous throughout the entire area of the facing disk, and particularly that it be uninterrupted about

the edge of this disk, since at this point the disk should be firmly bonded so as to effectively seal the joint about the edge of the facing disk. When cutting and applying the disks of material and adhesive, there is no means of ascertaining whether the desired conditions are present in the completed cap. Consequently, there is always likelihood of imperfectly faced caps being produced.

With the above conditions in mind, I have provided material in strip form, for facing bottle caps, in which one surface of the strip is provided with a firmly adherent, continuous thin facing of adhesive, thus avoiding all necessity for assembling strips of facing material and of adhesive tissue preparatory to their use in the bottle cap facing machine, and all of the disadvantages growing out of this practice.

a³
In the strip material of my invention, a very thin stratum of adhesive is evenly distributed upon one face of a strip of facing material. The adhesive is not only firmly bonded to this material, but has a smooth surface finish of sufficient thickness to form the desired firm bond between a disk cut from the strip and the material of the cap to which such disk is cemented.

Furthermore, adhesive tissue must be of a thickness to have sufficient inherent strength to permit of its being stripped from a roll in a mill for working same, and to admit of its being cut to the desired width and to be handled in the winding and the disk applying machines, and during the process of its production it has more or less of a longitudinally extending grain, as distinguished from its normal granular formation.

In the application of heat, when bonding the facing material to the cap, when utilizing adhesive tissue, a tendency

1682
1960

of the adhesive is to break up into slightly isolated, small globules, thus interrupting the continuity of the bonding stratum. Whether this is due to irregularities in the surface of the facing strip, or to a shrinkage of the adhesive tissue when fused, I have been unable to determine. In the strip of my invention, however, the adhesive is thoroughly distributed throughout one face of the facing material, and the above conditions do not develop in the subsequent handling of the strips.

Page 4

Line 3 after the period insert the following: -- So far as the method of producing the strip is concerned, it is such that the effective distribution of the adhesive throughout the entire area of the facing material is assured, and this condition cannot be disturbed as a result of the cutting of discs from this material when in strip form. Furthermore, the adhesive surface may be thoroughly inspected while producing the strip material, so that any imperfect product may be discarded before it reaches the disc applying machine.

Line 19 before "In" insert the following: -- Since the adhesive is applied directly to the surface of the facing or spot material and firmly bonded thereto, there is no likelihood of difficulties arising as a result of separation of the adhesive from the facing strip during the spot forming operation, either as a result of poor adherence or from suction or otherwise, such as frequently occurs when using superimposed strips of facing material and of adhesive tissue. Moreover, in handling this material the adhesive stratum is incapable of stretch or distortion relative to the spot strip as frequently occurs in the handling of separate strip of adhesive tissue and facing material where any stretch or distortion of the adhesive stratum results in a defective cap and when the stretch is extreme, tearing of the adhesive tissue makes necessary the

1683

1961

a⁵ stoppage of the cap machine until the strip can be repaired:

After the coating is dry, the metal foil spots are assembled, coated side down, with the sealing disks.

Page 4

Line 27 after the period insert the following:

a⁶ --In cutting discs from this improved laminated strip having an adhesive stratum bonded thereto, there is no tendency toward mutilation of the adhesive layer by reason of possible drag of the cutting dies, and each disc, as delivered from the die to within a cap, will present a continuous uninterrupted adhesive surface upon the disc so as to insure, by the subsequent application of heat and pressure, a bond between the disc and the cap cushion layer coextensive in area with the disc.

This possibility of securing a clean cut by the dies for forming the discs, both as to the non-absorptive and gas impervious, and as to the adhesive stratum, insures an effective bond entirely about the edge of the spot or disc, thereby presenting a continuous barrier of non-absorptive and gas impervious material at the space between the disc and the cap which will effectively prevent the seepage of gas or fluid in a bottle between the disc and the portion of the cap to which it is applied.

Line 30 after the paragraph insert the following:

a⁷ --Referring to the accompanying drawings, there is shown suitable mechanism for coating the strip and for cutting discs therefrom and adhesively uniting the disc to caps at the time of the assembly of the discs with the caps. In the drawings,

Figure 1 is a diagrammatical view showing the coating of the strip.

Figure 2 is a longitudinal sectional view of a fragment of the strip.

Figure 3 is a side elevational view partly in section showing one step in the assembly operation.

1962

Figure 4 is a view similar to Figure 3 showing the spot as it is cut and adhesively united to the cap at the time of assembly.

Figure 5 is an interior face view of the completed cap, and

Figure 6 is a cross-sectional view of the cap shown in Figure 5.

a' The strip of facing material should have the characteristic of aluminum foil. That is to say, it should present one surface which is non-absorbent and gas impervious. This strip may be fed from a reel 10 to a reel 11, suitably separated so that the adhesive coating may be applied and hardened between the time any portion of the strip leaves the reel 10 and is wound upon the reel 11. For the purpose of applying the adhesive, the same may be maintained in a trough 12, positioned beneath an adhesive applying roll 13, between which and a roll 14, the strip passes, so that as the rolls are rotated the adhesive is applied to the undersurface thereof. As will be understood, the adhesive hardens between the time it is applied and the winding of the laminated strip upon the reel 11.

The completed spot material or liner is illustrated in Figure 2, and comprises the layer 15 of non-absorbent and gas impervious material, such as aluminum foil having on one surface the coating 16 of adhesive, which is preferably of the character hereinbefore described. This adhesive is waterproof or liquid resistant, and will be normally hard, i. e. non-tacky, at room temperature, so that the material may be conveniently handled in strip form, but quickly softens under the application of heat, becoming tacky, so that upon the application of pressure, the laminated disc will be ad-

54/1

hesively retained in the cap. The preferred method of applying the material to the cap is to utilize, at the time of assembly, both heat and pressure to unite the spot to the cork or cushion material insert or facing of the cap.

In Figures 3 and 4, there is shown a suitable mechanism for applying the disc and adhesively uniting it to the cork insert at the time the strip is punched from the disc and assembled with the cap.

a⁷
The cap 17 is of the conventional crown type having an interior facing 18 of cushion material, such as composition cork retained in the cap as by an adhesive layer 17'; the cushion disc and adhesive may be applied to the cap in any suitable manner, for example as described in the patent to Marsa, No. 1,603,786, granted Oct. 19, 1926. The caps, with the cushion discs inserted therein, may be positioned beneath the cutting dies 19, 20, by means of a traveling bed 21 having suitable sockets for receiving the cap so as to position the same accurately beneath the cutting dies. The strip material for forming the spot is fed beneath the die 20 with the adhesive coating 16 facing the cap, and when the die descends it will cut from the strip, which is fed by any suitable means (not shown), a spot or facing 22 of the character illustrated in Figures 5 and 6. The spot or disc is preferably of smaller diameter than the cap facing so as to form a substantially centrally disposed spot which leaves around its edge an exposed portion of the cushion material adapted to engage the edge of a bottle neck, the spot being of sufficient size to close the bottle mouth and prevent contact of the contents with the cushion material.

As will be observed (Figures 3 and 4) as the punch 20 descends, it cuts from the strip a spot of the size shown in Figure 5, and continued downward movement presses this disc upon the cushion layer 18.

1964

a⁷ The punch 20 may be maintained at an elevated temperature, as by means of a burner 23, and the temperature should be sufficient to fuse or soften the adhesive coating and make it tacky so that, at the time the disc is assembled with the cap, the heat and pressure will cause the disc to be adhesively united to the surface of the cushion material with sufficient permanency to insure that the position will be retained and avoid likelihood of displacement of the disc thereafter.

Page 5

~~Line 10 cancel the sentence reading "Or the coating may be softened etc.," and ending in line 11.~~

~~Last line add the following:~~

a⁸ --A cap made in accordance with this method possesses the advantage of a substantially uniform and complete distribution of the adhesive layer throughout each spot or facing disc. The method has the advantage of eliminating the labor of associating a separate adhesive strip and a strip of facing material, and the further advantage of enabling higher speeds to be maintained in the facing spot applying machine. The elimination of the danger of breakage of a separate adhesive tissue strip avoids the frequent stoppage of the machine, which was unavoidable due to the handling of the somewhat fragile and elastic adhesive tissue.

IN THE CLAIM

~~Line 3 before "layer" cancel "a" and substitute --an exposed continuous--~~

~~Line 5 before "material" insert --sheet like facing--~~

~~Line 6 before "coating" insert --continuous--~~

~~Line 7 cancel "and acid resistant".~~

REMARKS

This application has been very carefully reviewed, and has

been amended in order that the invention may be set forth in the manner described in the parent application which has now matured into patent 1,788,260.

This application covers the article of manufacture which is employed in the method defined in the claims of the patent.

The amendments entered in the specification have been offered in the light of interviews kindly granted the applicant by the Examiner, and it is believed that, in view of these amendments, the Examiner will now appreciate more clearly the real problem which applicant has solved and the definite advance he has made over the prior art.

The Examiner's attention is particularly directed to the additional matter inserted in the specification. This matter simply explains the relation of the present invention to the prior art and defines the characteristics of the material involved in the use of the method which make the method a very valuable advance over former practices.

The applicant does not claim to be the first to have used metallic foil; this material is simply one of numerous materials which have been used for years in the spotting or facing of caps. These cap facings or spots are employed in order to afford a non-absorbent, gas impervious and acid resistant surfacing for the cushion material which is used in crown caps. As the Examiner will, of course, appreciate, other materials have been used, such as paper suitably finished to impart these characteristics to the same.

At the time the applicant made the present invention, it was customary to "spot" by feeding the acid and gas resistant material in strip form, and also the adhesive tissue in strip form, and to simultaneously punch from the strips discs of the acid resistant material and of the adhesive tissue. Another practice was to deposit on the cushion material of the cap the cement or liquid adhesive, and then to apply the disc of acid resistant

material. The use of this liquid made the process slow in view of the difficulties in applying the glue or paste. Moreover, the use of a separate strip of adhesive in tissue form was objectionable for various reasons, which are now fully explained in the specification. Briefly stated, these objections were:

FIRST - it was difficult to handle the adhesive in tissue form and breakage of the same made necessary the stopping of the cap machine.

SECOND - stretching or distortion of the tissue adhesive made it difficult to obtain exact registry of the tissue disc and acid-resistant material disc when the two were applied to a cap.

THIRD - due to drag in the cutting dies, it was not always possible to obtain exactly corresponding sizes of tissue and material discs, with the result that the entire bottom surface of the material disc was not always backed with adhesive and the material disc was not always united to the cushion throughout its entire edge.

FOURTH - the necessary thickness of the adhesive tissue resulted in expression of the same from beneath the facing when pressure is applied to the spot.

FIFTH - the handling of two strips of material retarded operation of the cap assembling machine.

SIXTH - the necessary thickness of the adhesive tissue made it difficult to obtain a firm bonding of the tissue and facing material throughout the face of the disc.

SEVENTH - after the punching operation the separate discs moved out of registration and resulted in a large proportion of defective caps.

These and other objections to the previously used processes have been overcome by the applicant. His invention involved, as a primary concept, the elimination of the use of separate strips

1967

in the cap assembly operation. As a secondary concept, it involved the provision of a unitary multi-layer strip with the layers bonded, one surface of this strip being a waterproof adhesive which will soften under the application of heat and pressure, and the other surface being acid resistant, gas impervious and non-absorbent. It has frequently been pointed out by the Courts that invention often consists in discovering what is the difficulty with existing structures or methods, and that this constitutes invention, although the means for overcoming these objections are comparatively simple. For example, Judge Hough said in the case of Kurtz et al. v. Belle Hat Lining Co. Inc., (C. C. A. 2nd Cir.) 280 Fed. 277 (at 281):

"Patentability has often been found 'in discovering what is the difficulty with an existing structure' and correcting the same, even though 'the means' are old and their mere 'adaptation to the new purposes involves no patentable novelty.' Miehle, etc., Co. v. Whitlock, 223 Fed. 647, 650, 139 C. C. A. 201. Hindsight, or wisdom after the fact, has always been looked upon with disfavor; e. g. Faries Co. v. Brown, 121 Fed. 547, 550, 57 C. C. A. 609."

The same Circuit Court of Appeals in the earlier case of Miehle Printing Press & Mfg. Co. v. Whitlock Printing Press Co., 223 F. R. 647, said:

"Patentable novelty is sometimes found in discovering what is the difficulty with an existing structure and what change in its elements will correct the difficulty, even though the means for introducing that element into the combination are old and their adaptation to the new apparatus involves no patentable novelty."

In these decisions the Courts simply followed other decisions to the same effect, such as Patents Selling v. Lamn 204 Fed. 99; General Electric v. Hartman 187 Fed. 131; General Electric Co. v. Sangamo Electric Company (C. C. A. 7th) 174 Fed. 246. In the last case, the Court pointed out that there are two steps involved in an inventive act, namely (a) discerning

in existing machines or processes some deficiency, and (b) pointing out the means to overcome the same. The Court said this in the following language:

"Invention, in the nature of improvements, is the double mental act of discerning in existing machines, processes, or articles, some deficiency and pointing out the means of overcoming it."

The applicant's invention, from the standpoint of conception, consisted in three steps. First, he perceived that the former practices of using (a) paste or glue, or (b) a separate strip of adhesive tissue, were cumbersome and objectionable. He saw the objections and set out to overcome them. The second step in his invention was to supply the medium and method by which these objections might be eliminated. In connection with the second step, he supplied a material of laminated character having (a) one exposed surface which is acid resistant and gas impervious, and (b) another exposed surface with a thin coating of waterproof adhesive which softens under the application of heat, but is normally hard, so that the material may be conveniently handled.

The applicant's development has numerous advantages, including the following:

1. The cost of product of spot crowns is very materially decreased; in fact this invention alone was the main factor in reducing the cost of production of spot crowns sufficiently to make possible commercial production.
2. There is but a single strip to handle, instead of the two separate strips of the former method.
3. There is no need of applying paste or glue to the cushion material of each cap.
4. The simultaneous cutting of the adhesive and material discs from a single strip insures that the adhesive is coextensive in area with the material with the result that there is no possibility of gas or moisture entering between the spot material and the cushion layer around the edges of the spot.

1969

5. The thinness of the adhesive layer avoids expression of the adhesive when pressure is applied to the spot.

6. There is no tendency for distortion or stretching of the adhesive layer relative to the material strip.

7. There is no possibility of breakage of a fragile adhesive tissue which results in stoppage of the machine.

8. It is possible to inspect the facing material as it is fed into the assembly machine to insure that the entire surface is coated with adhesive, which cannot be done when the separate strips are fed or when paste or glue is first applied to the cushion material. In other words, imperfectly faced caps are virtually eliminated. There is absolute registration of the edges of the material disc and adhesive disc which is difficult to obtain in the manufacture from separate strips.

9. The discs in united form may be fed into the cap in absolute registry and assembled by the cutting punch, due to the bonded relation of the two layers.

10. The heat and pressure necessary for uniting the facing to the cap may be applied substantially simultaneously with the punching and assembly operations without waiting for inspection, since there is no danger of the adhesive and material discs moving out of registry with one another; this permits an operation in which the punch used to cut the discs may also be employed to apply the pressure.

These and other advantages of applicant's invention make the same, from a practical standpoint, a radical advance in the art. The Examiner will appreciate this from the fact that this method has been adopted by the Crown Cork & Seal Company, in lieu of formerly used articles. This Company, as the Examiner is probably aware, is the largest manufacturer in the world of crown caps.

As a further feature of the invention, the applicant proceeded to provide a method involving the use of this article. However, the article is the basis for the method. Protection having been granted for the method, it is thought that the same argument which supports the patentability of the method, applies with much greater force to the article, without which the method

1970

could not have been provided.

THE PRIOR ART

The prior art cited by the Examiner illustrates quite well prior practices.

Koch (1,238,156) describes a cap having an external facing of foil and several underlayers which are, respectively, vulcanized rubber, tough paper and gutta percha. But there is nothing in this patent which suggests the idea of providing strip material having an external facing, such as foil or paper and another surface adhesively united thereto in the form of a water resistant adhesive which will fuse upon the mere application of heat. While the patent illustrates a final article having a foil facing and which includes, among its several underlayers, a gutta percha adhesive, it does not, in any way, suggest the material or article of manufacture which applicant is claiming.

Marsa (1,603,786) shows tin plate 10 from which caps are stamped. This tin plate has applied thereto, at intervals, spots 11 which are merely a cementing medium in the cap after it has been stamped from the cushion layer 16. Consequently, this patent does not suggest strip material having a continuous coating of heat fusible adhesive. The material disclosed is tin plate, which is the body of the cap. Consequently, it is not a cap liner, and is not adapted to serve as a cap liner or for the spotting of cushion discs. The other references are not at all pertinent, and have not been advanced by the Examiner as pertinent to this invention.

The claim has been amended to make clear that the material, such as foil or paper, is of sheet like character, and that the adhesive forms a continuous coating thereon. Moreover, the claim specifies that the materials are of the character adapted for the spotting of cushion discs, and obviously the tin plate disclosed by Marsa could not be used for the purpose of forming a liner

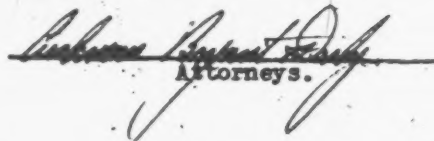
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or a cushion disc upon a cap.

Allowance of the case is thought to be in order and
is respectfully requested.

Respectfully,


Attorneys.

JJD:U

-15-

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1972

56 Room 311

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 5

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

The Commissioner of Patents,
Washington, D. C.
and not any official by name

RSC/jmk

Enclose and below a communication from the EXAMINER in
charge of this application.

December 17, 1931

Thomas E. Robertson
Commissioner of Patents.

Applicant: Albin H. Warth

Cushman, Bryant & Darby,
Loan and Trust Bldg.,
Washington, D.C.

Ser. No. 494,201
Filed Nov. 7, 1930
For Bottle Cap Spot Material

MAILED
DEC 17 1931

Responsive to amendment filed June 16, 1931.

The following additional references are made of record:

Beer	1,023,713	April 16, 1912	154-Metal Foil
Stanley	961,550	June 14, 1910	154-Metal Foil

The claim is again rejected on Marss who clearly shows a metal foil coated with a fusible adhesive. While Marss's coating is not continuous, it would be obvious to make it so.

The claim is further rejected on Stanley or Beer both of whom show metal foil coated with a thermoplastic adhesive such as resin, gum, etc. While these references do not propose to make the same use of their article as the applicant, the mere functional statement as to the use does not render an article patentable. Furthermore, it is clear that a patentee is entitled to new uses for his article.

This case should be prepared for a final action.

RSC

J. H. White
Examiner.

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Applicant: Albin H. Warth
Invention: BOTTLE CAP SPOT MATERIAL
Filed: November 7, 1930
Ser. No. 494,201

Sub Pow. atty
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HON. COMMISSIONER OF PATENTS,

SIR:

We hereby substitute as attorneys in the above named case, Messrs. Cushman, Bryant, Darby & Cushman, a firm composed of Arlon V. Cushman, Arthur L. Bryant, John J. Darby and William M. Cushman (Reg. No. 7196), American Security Building, Washington, D. C.

Respectfully,

Arthur L. Bryant

.....June 16, 1932.....

1896

1974



IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,
BOTTLE CAP SPOT MATERIAL,
Filed November 7, 1930,
Serial No. 494,801.

Division 56.

June 16, 1932.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

We hereby authorize and request entry of the following amendment in the above entitled application:

IN THE SPECIFICATION:

Page 3i

Next to the last line, after the period insert the following:

B' -- An adhesive of this character provides a highly flexible adhesive layer continuously united with the facing material. Moreover, such an adhesive is highly resistant to the acids and alkalis ordinarily present in liquids which are to be capped. This is highly important in the manufacture of spot caps, since the liquids attack the adhesive around the edge of the spot. An adhesive of this character, which is not only waterproof, but resistant to acids and alkalis as well, maintains a firm adherent union of the facing or spot material with the cork disc. Due to its flexible character, it will not crack, and, therefore, it constitutes a flexible backing for the spot material. --

1975

IN THE CLAIM:

~~Line 1, before "laminated" insert -highly flexible-.~~
~~Line 3, after "waterproof" insert -- , flexible and acid-resistant-.~~

~~Same line (3), after "adhesive" insert --adapted to adhere to a cork disc and-.~~

C.B.D. & E. line 3, before comma insert - with ^{up to} less weight than the disk discloses

REMARKS

The Examiner is respectfully requested to reconsider this application, since the claim has been limited in a manner which definitely confines its scope to the cap art. The claim as previously worded was rejected upon the Marsa patent, and also upon the patents to Stanley and Beer.

Marsa does not disclose flexible spotting material. Marsa shows merely sheet metal having spots of adhesive thereon. This metal is used for the formation of caps which are stamped from the metal at the points where the adhesive is applied. The disclosure in the Marsa patent is totally foreign to applicant's invention, which relates to spotting material intended to be used for producing the well known center spot type of cap. This type of cap is now a recognized species of crown cap and is universally employed for capping ginger ales and other highly acidulated beverages.

The patents to Stanley and Beer do disclose a flexible material having an adhesive thereon. But the Examiner will admit, of course, that the Stanley and Beer materials have no relation to the capping art. If applicant were claiming merely a flexible material having an adhesive thereon, these patents would, perhaps, be somewhat pertinent, and we appreciate their citation by the Examiner in order that the record may be complete.

But applicant is claiming a new article of manufacture which consists of water-resistant facing material having a

1976

backing layer of an adhesive which is of a specific type, namely (a) flexible, (b) waterproof, and (c) acid-resistant. These are three (3) essential characteristics of applicant's article, and they are not present in the Stanley and Beer devices.

Neither of the patentees had any conception of material which would be useful in the capping art. Neither suggests an adhesive which could be practicably employed for uniting a spot to a cork disc.

Stanley contains no suggestion of a chemically resistant adhesive which could be employed for uniting either paper or tin foil to a cork disc in a bottle cap. Stanley does not mention any specific type of adhesive, although he does provide a water jacket, and, therefore, it is probable that the adhesive is a glue solution of high viscosity. Such an adhesive would be suitable for adhering metal letters to leather bags, but it would be useless in the cap manufacturing art.

Beer uses a simple water soluble gum or glue. Beer cannot use anything which would be effective in the cap art, since his final object is to strip metal foil from a surface which is purposely made non-adherent.

Such a type of adhesive would be of no use whatsoever in applying spot material to cork discs intended to be used for sealing acidulous beverages.

It is apparent, therefore, that neither Stanley nor Beer suggests the use of a flexible acid-resistant adhesive. Obviously, neither of these patentees ever thought of acid resistance. They were concerned merely with providing monograms for leather goods.

Applicant provides, however, a new article of manufacture consisting of highly flexible facing layer, of foil for example,

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and a continuous adhesive layer which is equally flexible, and is also both waterproof and acid-resistant. A further characteristic of the adhesive layer is that it fuses upon application of heat and will become hard at room temperature.

It is submitted that this application discloses a radically new conception. Applicant is the first to provide spotting material in strip form having a continuous adhesive backing of the character described united thereto. The practical character and importance to the industry of applicant's conception and disclosure is apparent from the record.

Admittedly, the changes required to adapt Stanley or Beer to the capping art are small. But the ultimate fact is that neither Stanley's nor Beer's material as constituted, is suitable and a conception radically different from either of the patentees was necessary in order to perceive the advantage of applicant's idea and to complete applicant's conception. As the Courts have repeatedly said, developments of this character are not to be tested in the light of the changes made in the prior art. The changes required in prior art devices are ordinarily very simple. But the question of invention is to be determined rather by the idea which dictated the changes and the simplicity of the changes is immaterial. As Judge Learned Hand recently said in the case of H. C. White Co. v. Morton E. Converse & Son Co., involving a child's "Kiddie Car", 20 Fed. (2d) 311 (at 313) (C.C.A. 2d Cir.):

"Again and again, ~~ad nauseam~~, courts have been fond of saying that it is the obvious when discovered and put to use that most often proves invention. In such matters we look rather to history than our own powers of divination, if history is at hand. Hirach v. Gould, 6 Fed. (2d) 793 (C.C.A.2). * * * We see in this an invention just because, be-

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ing so simple, it had not occurred to any one before. The fact that the changes were so slight is quite irrelevant, so long as they were essential to the purpose, as they were."

Again, Judge Hough considered the same question in

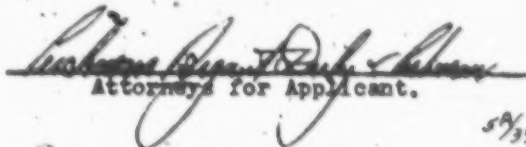
Kurtz et al v. Ball Hat Lining Co., Inc., (C.C.A. 2d Cir.)

290 Fed. 277 (at 281):

"Patentability has often been found 'in discovering what is the difficulty with an existing structure' and correcting the same, even though 'the means' are old and their mere 'adaptation to the new purposes involves no patentable novelty.' Nichols, etc., Co. v. Whitlock, 223 Fed. 647, 650, 139 C. C. A. 201. Hindsight, or wisdom after the fact, has always been looked upon with disfavor; e. g., Paries Co. v. Brown, 121 Fed. 547, 550, 57 C.C.A.609."

The claim now presented does distinguish from the prior art and defines the precise characteristics of applicant's article which make it suitable for the capping art to which it relates. The Beer and Stanley devices are not intended for the capping art and are not suitable for the purposes for which applicant's invention was intended. It is submitted, therefore, that the distinctions between applicant's invention and the prior art, although slight, should be viewed in relation to the fact that they make applicant's invention a highly useful and meritorious one, whereas the prior art contributes nothing practical or useful for applicant's purposes.

Very respectfully,


Attorneys for Applicant.

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1701

1979

Div. 50

Exam 4701

1:JB

Paper No. 8

Address only
 "The Commissioner of Patents,
 Washington, D. C."
 and not any other name

DEPARTMENT OF COMMERCE
 UNITED STATES PATENT OFFICE
 WASHINGTON

All communications respecting this
 application should give the serial number,
 date of filing, and name of
 the applicant

MAILED

Please find below a communication from the EXAMINER in DEC 9 1932
 charge of this application.

Thomas E. Robertson
 Commissioner of Patents.

Applicant: A. H. Warth

Cushman, Bryant, Darby &
 Cushman,
 Loan & Trust Bldg.,
 Washington, D.C.

Ser. No. 494,201
 Filed Nov. 7, 1930
 For Bottle Cap Spot Material

In view of interference No. 60,878, action on the
 merits of the claim of the instant application is sus-
 pended, in accordance with the practice approved in ex
 parte McCormick, 113 O.G. 2508; C.D. 1904, 575.

When the above interference has been terminated,
 applicant should call this case up for action.

Ch. Beane

Examiner.

SA
 34

1702
1980



IN THE UNITED STATES PATENT OFFICE

For Affidavit

Albin H. Warth,
BOTTLE CAP SPOT MATERIAL,
Filed November 7, 1930,
Serial No. 494,201.

Div. 56.

* * *

January 31, 1933

Hon. Commissioner of Patents.

Washington, D. C.

Sir:

We hereby authorize and request entry of the following
amendments in the above entitled application.

IN THE SPECIFICATION

Page 3

✓Line 25 cancel "gum" and substitute --resin--.

Line 30 after the period insert Another example of

a suitable gum type of adhesive is gutta percha or a gutta
percha containing compound which have characteristics similar to
the composition previously described. Among such characteristics
are substantially non-tackiness or adherence at room temperature
a high degree of flexibility, insolubility in and imperviousness
to moisture or water, acid resistance and heat fusibility, i. e.,
adapted to be brought to a tacky state by the mere application
of heat and without the use of moisture. Such an adhesive is
specified in my co-pending application, Serial No. 414,614, filed
December 17, 1929.--

Page 4

Line 11 change "thirty" to --three--.

IN THE CLAIM

✓Cancel the claim and substitute:

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PmD
--2. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of water-proof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

C2
Ex 12
3. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of water-proof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive containing a rosin, damar gum and a vegetable oil and being substantially non-tacky at room temperature but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.--

Adh 2

The interference, No. 60,876 having terminated favorably to the applicant, it is requested that this application be considered.

The claims have been redrafted along the lines discussed with the Examiner whose suggestions have been adopted and are very much appreciated.

As will be understood, this application is copending with application Serial No. 414,614, and the two applications will be issued simultaneously since neither is prior art as against the other, both inventions having been made on or about the same date. In addition to the prior art of record, applicant's attorneys have considered with the Examiner the following patents:

880,969, Butler	March 3, 1908
1,690,161, Evans	Nov. 6, 1928
739,932, Seiffert	Sept. 29, 1903.

While the patent to Seiffert (739,932) does disclose broadly metal foil having an adhesive coating, there is nothing in this patent which is suggestive of the combination recited in the claims. The first of the two new claims presented is generic for the purpose of covering either the specific adhesive disclosed or one of the same general type, e. g., gutta percha. The second claim is restricted to the specific adhesive originally disclosed.

While it may be broadly old to use gutta percha in the cap art, applicant is the first to disclose a "spotting" material comprising metallic foil as one layer and an adherent coating of a flexible adhesive which is impervious to moisture, acid resistant and fusible upon the mere application of heat, i. e., without the use of a liquid. As the Examiner appreciates, the provision of this combination enables the production at a very high rate of speed of "center spot" caps in which the spots are accurately centered due to the absence of moisture from the adhesive. In other words, the use of heat alone in the punching and pressure applying operations effects the union of the heat softened or heat fused adhesive with the cork. There is no reference of record which suggests the production, as an article of manufacture, of either metallic foil or of paper of the character useful for the spotting of caps, either

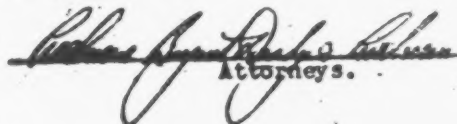
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1983

provided with an adherent continuous coating of highly flexible adhesive which is impervious to moisture, acid resistant and fusible upon the mere application of heat. Applicant's discovery that this combination of elements facilitates and makes possible the provision of accurately centered spots overcame difficulties which prior to applicant's invention had made difficult the production of paper spot or of metallic spot caps on a commercial scale. While the invention is a simple one, it is, nevertheless, an extremely important contribution to the cap industry. This application, together with the companion application, Serial No. 414,614 disclose the invention in its entirety, the present case being limited to a species, to wit: adhesively coated foil, and the other application being limited to another species, namely, adhesively coated paper.

Although the Examiner has available patents which show the use of gutta percha as an adhesive, there is nothing suggestive in either of these patents of combining this adhesive with strip foil. While the Seiffert patent teaches the coating of metal foil broadly, this does not anticipate the invention. Applicant does not claim to be the first to apply adhesive to metallic foil even in the bottle cap art. It is the combination of the foil with the exposed continuous coating of adhesive of the type specified in the claims which is new with the applicant and which constitutes his contribution to the art. The claims recite the characteristics of the type, and since the combination is new, there is no basis for an aggregation of the individual or separate patents to anticipate them.

Allowance of this case is thought to be in order and is solicited.

Respectfully,


Attorneys.

JJD:U

1706
1984



IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,
BOTTLE CAP SPOT MATERIAL,
Filed November 7, 1930,
Serial No. 494,201.

Div. 56.

* * *

DISTRICT OF COLUMBIA:SS.

Albin H. Warth, whose application for Letters Patent for Improvements in Bottle Cap Spot Material, was filed November 7, 1930, Serial No. 494,201, being duly sworn, deposes and says that he has read the attached amendment and that the subject matter thereof was part of his invention, was invented before he filed his original application, above identified, for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, or in public use or on sale in this country for more than two years before the date of his application, and that the same has not been abandoned.

Albin H. Warth

Subscribed and sworn to before me this 31st day of
January, 1933.

Theresa Buckhuth
Notary Public, D.C.

SEAL.

1707
1985

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

Div. 50
K

Serial No. 494,201

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE
WASHINGTON

February Two, 1933

Albin H. Warth, Assor.,

Your APPLICATION for a patent for an IMPROVEMENT in
Bottle Cap Spot Material

filed Nov. 7, 1930 has been examined and ALLOWED with 2 claims.

The final fee, THIRTY DOLLARS, WITH \$1 ADDITIONAL FOR EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than SIX MONTHS from the date of this present notice of allowance. If the final fee be not paid within that period, the patent will be withheld, but the application may be renewed within one year after the date of the original notice with a renewal fee of \$30 and \$1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date, on which date their term begins to run. The preparation of the patent for final signing and sealing will require about four weeks, and such work will not be begun until after payment of the necessary final fee.

When the final fee is paid, there should also be sent, DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF ALLOWANCE (which is the date of this circular), DATE OF FILING, and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE OR ASSIGNEES, an assignment containing a REQUEST to that effect, together with the FEE for recording the same, must be filed in this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the drawings and specifications may be purchased at the price of TEN CENTS EACH. The money should accompany the order. Postage stamps will not be received.

The final fee will NOT be received from other than the applicant, his assignee or attorney, or a party in interest as shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20, NO SUM LESS THAN \$30 PLUS \$1 ADDITIONAL FOR EACH CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE FINAL FEE.

Respectfully,

Thomas E. Robertson

Commissioner of Patents.

Cushman, Bryant & Darby &
Cushman,
Loan & Trust Bldg.,
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

1708
1986

10/D
U. S. PATENT OFFICE

FEB 3 - 1933

ISSUE DIVISION

IN THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP SPOT MATERIAL,

Filed November 7, 1930,

Serial No. 494,201.

Division 50.

AMENDMENT UNDER RULE 78.

February 2, 1933.

Hon. Commissioner of Patents,

Washington, D. C.

Sir:-

We hereby request that the following amendment be entered under Rule 78, without withdrawing the application from issue:

IN THE CLAIMS:

Cancel the first of the two (2) claims appearing herein, said claim being numbered 2 before allowance.

REMARKS

The first of the two (2) allowed claims has been cancelled, for the reason that it has been transferred to applicant's copending case Serial No. 414,614, filed

December 17, 1929.

ENTRY RECOMMENDED.
UNDER RULE 78.

Very respectfully,

Ch. H. H. H.
EXAMINER.

Carlson, Bryant, Dwyer & Carlson
Attorneys for Applicant.

ENTRY APPROVED

JJD:W

M. H. H.
ACTING COMMISSIONER OF PATENTS

Serial # 1,894,782
9/1/68X (A118)

20

1709
1987

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Feb. 4, 1933

Petition under **RULE 78:**

Application of

Serial No.

Invention:

This petition is referred to Examiner in charge of Division *50* in accordance with
Order No. 2698; Order No. 2801, 308 O. G., 447, and Notice of August 11, 1922.

Thomas E. Robertson

Commissioner.

1710
1988

Div. 50

Room

4701

Address only
The Commissioner of Patents,
Washington, D. C. 20530
and not any official by name

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Page No. 11

All communications respecting this
application should give the serial number,
date of filing, and name of
the applicant

February 6, 1933

Cushman, Bryant, Darby & Cushman,
Loan & Trust Bldg.,
Washington, D. C.

Applicant: Albin H. Warth

Ser. No. 494,201
Filed Nov. 7, 1930
For Bottle Cap Spot Material

The amendment proposed has been entered under Rule 78.

Thomas E. Robertson
Commissioner of Patents.

1711
1989

Renewal + Amend E

#12



Albin H. Warth,

BOTTLE CAP
SPOT MATERIAL,

Filed November 7, 1930,

Serial No. 494,801.

Div. 56.

Allowed February 2, 1933.

February 1, 1934

Hon. Commissioner of Patents,

Washington, D. C.

Sir:

We hereby authorize and request entry of the following amendments in the above entitled application.

IN THE SPECIFICATION

Page 5

At the end of the page, after the amendatory matter now inserted add the following:

--A cap made from a material including an adhesive of the general character described has advantages which are not obtainable with the use of a gutta percha as an adhesive for uniting the center spot to the cushion disc. It has been found in the capping of beverages which are subjected to pasteurization that gutta percha tends to soften in the presence of wet or moist heat above 150°F., and the same applies to gutta percha containing compounds. A composition of the character described resists softening, not only through the temperature range of ordinary pasteurizing temperatures up to 150°F., but also through the range of forced pasteurizing temperatures which vary from 165°F. to 170°F. As a matter of fact, some liquids, such as vinegar, are pasteurized

through a range of 165 to 185°F., and I have found that, in my improved cap, the spot remains firmly united to the cushion disc up to 185°F. Furthermore, a gutta percha or gutta percha compound when used for uniting a center spot to a cushion disc, although having many advantages rendering it highly valuable in crown cap manufacture, has the tendency to swell in the presence of moisture. This swelling tendency becomes extremely pronounced under high pressures, such as are created within a bottle containing carbonated beverages, particularly when the latter are subjected to pasteurizing temperatures, e. g., in the pasteurizing of beer. The swelling of the adhesive uniting the center spot and the cushion disc separates and loosens the center spot and reduces the efficiency of the seal. In my improved cap, the adhesive layer or film uniting the center spot to the disc does not swell in the presence of moisture, and hence the spot does not separate from the cushion disc.

These characteristics are of vital importance in the manufacture of "center spot" caps; since the diameter of the spot or facing and of the adhesive layer uniting the same to the cushion disc is less than the cushion disc diameter, the capped liquid and the moist heat produced, e. g., during pasteurization, attack the adhesive layer around the periphery or edge of the center spot. Hence, the problem of maintaining an adherent union of the "center spot" with the cushion disc is not encountered in constructions wherein the facing is coextensive with and completely covers the cushion layer.--

IN THE CLAIMS

Add the following claim:

1713
1991

²
-4. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.--

REMARKS

ddd 4.1
The Examiner is, of course, aware of applicant's issued Patent No. 1,899,782, granted February 28, 1933, and which is hereby made of record. Said issued patent contains the generic claims to material of the type covered by the present application.

The new claim presented distinguishes from the issued patent for the reasons clearly set forth in the amendatory matter inserted in the present specification by this amendment.

The use of gutta percha or gutta percha compounds in this art is unquestionably a valuable contribution, particularly in connection with the "center spotting" of caps. That has been already recognized by the Patent Office and the tremendous commercial success of applicant's assignee in exploiting center spot caps in which the center spot facing is united by gutta percha adhesive to the cushion disc constitutes a corresponding recognition by the trade.

However, in the bottling of some liquids, it has been found advantageous, particularly for pasteurizing purposes, to use an

adhesive of the character disclosed in the present application; in other words, an adhesive which will not swell when subjected to moisture and heat above 150°F. Gutta percha tends to swell and softens under heat above 150°F.

The Examiner's attention is called to the distinguishing characteristics of the present invention which are set forth in the amendment to the specification, and these are embodied in the single new claim presented. The claim obviously distinguishes from the prior art and since it is not readable upon the disclosure of the issued patent (1,899,782) it is thought that the case may be allowed forthwith.

Respectfully,

Richard B. Dwyer & Richard B. Dwyer
Richard B. Dwyer & Richard B. Dwyer
Attorneys.

JJD:U

1933

FEB-134 136007 A - Check --- 30.00



REC'D

PETITION FOR RENEWAL

TO THE COMMISSIONER OF PATENTS:

Your Petitioner, Albin H. Warth, a citizen of the United States, and resident of Baltimore, State of Maryland, whose post-office address is C/o Crown Cork & Seal Company, Inc., represents that on the 7th day of November, 1930, he filed an application for Letters Patent for an improvement in Bottle Cap Spot Material, Serial No. 494,201, which application was allowed February 2, 1933, but that he failed to make payment of the final fee within the time allowed by law. He now makes renewed application for Letters Patent for said invention, and prays that the original specification, oath and drawings, may be used as part of this application.

ALBIN H. WARTH

By

Robert E. Smith & Co.
Attorneys.

Washington, D. C.,
February 1, 1934.

1994 1716

RENEWAL

11444201

250

Print of drawing as removed.

Fig. 1.



Fig. 2.

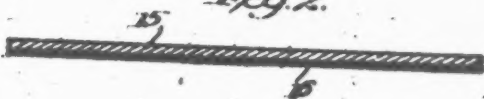


Fig. 3.

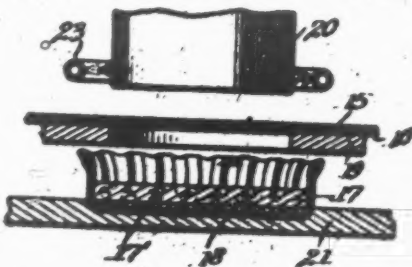


Fig. 4.

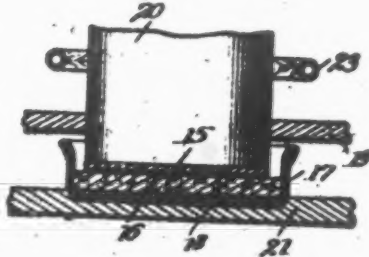


Fig. 5.

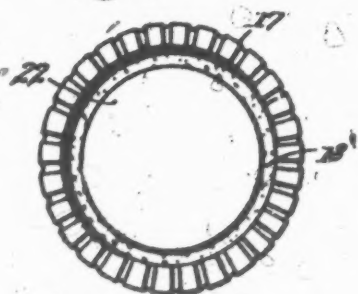


Fig. 6.



Inventor

Albin H. Warth.

Charles Bryant Smith

Attorney

22/2/32

This is to certify that the above is a true and correct copy of the drawing and must be submitted to the Chief Draftsman before use.

16.

1995

Div. 90

Room 4701

Page No. 13

Address only
The Commissioner of Patents
Washington, D. C.
and not any official for same

2/K

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

All communications respecting this
application should give the serial no. and
date of filing, and name of
the applicant.

Please find below a communication from the EXAMINER in
charge of this application.

MAILED

FEB 20 1934

222 11 1934

Commissioner of Patents

Applicant: Albin H. Warth

Cushman, Bryant, Darby & Cushman,
Loan & Trust Bldg.,
Washington, D. C.

Ser. No. 494,201
Filed Nov. 7, 1930 Men. 24-34
For Bottle Cap Spot Material

Claim 1 (original Claim 3) is directed to probably allow-
able subject matter.

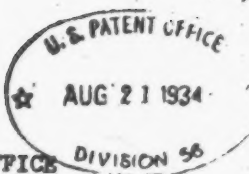
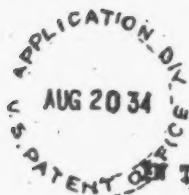
New Claim 4 is rejected as being broader than the disclosure
in view of the fact that applicant has described only one adhesive
that possesses the properties recited. It is well established that
the disclosure of only one substance does not give the right to
lay claim generically to a whole class of substances. As is appar-
ent, considerable experimentation would be required to determine
just what compounds possess the attributes recited. In other
words, the claim is so broad as to amount to nothing more than a
mere hint for further experimentation. Line 5, "an" should be
changed to -a continuous-

Ch. Blake
Examiner.

11/1

1936

1417



THE UNITED STATES PATENT OFFICE

Albin H. Warth,

BOTTLE CAP
SPOT MATERIAL,

Filed November 7, 1930,

Serial No. 494,201,

Allowed February 2, 1933.

U. S. PATENT OFFICE

FILED

AUG 21 1934

DIVISION 50

Div. 56.
August 20, 1934.

* * *

Hon. Commissioner of Patents,
Washington, D. C.

Sir:-

We hereby authorize and request entry of the following
amendments in the above entitled application.

IN THE CLAIMS:-

Claim 4:

Line 3, strike out "an" and insert --a continuous--.
Same line, after "flexible" insert --, heat fusible--.
Add the following claims:-

4
-3. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing a resinous material adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

4. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing an adhesive resin adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

5. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing a mixture of resins adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.--

REMARKS

Reconsideration is respectfully asked of the rejection of claim 4. Applicant is a pioneer in the art of spot material and the present application has an effective date of 1927. Consequently, applicant is entitled to a very liberal interpretation of his invention and the scope thereof should not be restricted for purely formal reasons.

The claim of record calls for strip material for the spotting of cushion discs or caps in the form of a continuous layer of metal foil coated with a continuous layer of (1) waterproof; (2) flexible; (3) heat fusible; and (4) acid resistant adhesive. In other words, the adhesive must conform to all of these qualifications and the claim is therefore limited specifically thereby and excludes various compositions or adhesives which do not have these properties.

In addition, the claim recites that the adhesive is (5) adherent to the metal foil and (6) adherent to a cork disc, both limitations restricting the field from which equivalent adhesives will be selected and further defining the adhesive.

The claim further recites (7) that the adhesive is substantially non-tacky at room temperature but (8) fusible upon the mere application of heat and (9) substantially non-softening at temperatures up to and including 170°F. These are more complete qualifications surrounding the adhesive and restrict the class of adhesives upon which applicant's discovery is based.

Furthermore, the claim recites (10) that the adhesive is substantially non-swelling and (11) non-contracting under conditions of moisture variation.

We feel that perhaps the Examiner has misunderstood the import of the claim and we hope that by listing the qualifications which are in effect limitations, that he will recede from his position. Applicant is attempting to cover broadly a class of adhesives which as a pioneer he is entitled to cover and the claim has been definitely limited to recite the qualifications and properties of the adhesive. Such being the case, it is felt that applicant is entitled to the claim since it is definitely limited to his discovery and excludes a large number of inoperative and undesirable adhesives which do not possess each and every one of the characteristics or limitations of the claim. o

Claim 5 is similar to claim 4 but is even more restricted

by reciting that the adhesive contains a resinous material. Certainly this claim is patentable.

Claim 6 differs from claims 4 and 5 in reciting that the adhesive contains an adhesive resin. This claim is therefore even more definite and for the reasons above stated is clearly patentable.

Claim 7 recites that the adhesive contains a mixture of resins and it is thought that this claim will be found patentable.

In asking for reconsideration, we have in mind the position which this case occupies as a pioneer invention, and of course there is no prior art of record which even closely approaches the structure defined in the claims.

In view of all of these circumstances and to the further fact that the claims are definitely limited to applicant's construction of a strip spotting material, we ask the Examiner to carefully reconsider his action and to pass the case to issue.

Respectfully,

Cushman, Burges, Davis & Reskay
Attorneys for applicant.

MCL:I

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

Div. 58. 151
K W

Serial No. 494,801

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

WASHINGTON

October Five, 1934

Albin H. Warth, Asser.,

Your APPLICATION for a patent for an IMPROVEMENT in
Bottle Cap Spot Material

Approved Feb. 1, 1934

Filed Nov. 7, 1933

Has been examined and ALLOWED with 5 claims.
The final fee, THIRTY DOLLARS, WITH \$1 ADDITIONAL FOR
EACH CLAIM ALLOWED IN EXCESS OF 20, must be paid not later than
SIX MONTHS from the date of this present notice of allowance.
If the final fee be not paid within that period, the patent
will be withheld, but the application may be renewed within one
year after the date of the original notice with a renewal fee
of \$30 and \$1 additional for each claim in excess of 20.

The office delivers patents upon the day of their date,
on which date their term begins to run. The preparation of the
patent for final signing and sealing will require about four
weeks, and such work will not be begun until after payment of
the necessary final fee.

When the final fee is paid, there should also be sent,
DISTINCTLY AND PLAINLY WRITTEN, the name of the INVENTOR, TITLE
OF THE INVENTION, AND SERIAL NUMBER AS ABOVE GIVEN, DATE OF
ALLOWANCE (which is the date of this circular), DATE OF FILING,
and, if assigned, the NAMES OF THE ASSIGNEES.

If it is desired to have the patent issue to an ASSIGNEE
OR ASSIGNEES, an assignment containing a REQUEST to that effect,
together with the FEE for recording the same, must be filed in
this office on or before the date of payment of the final fee.

After issue of the patent, uncertified copies of the
drawings and specifications may be purchased at the price of
TEN CENTS EACH. The money should accompany the order. Postage
stamps will not be received.

The final fee will NOT be received from other than the
applicant, his assignee or attorney, or a party in interest as
shown by the records of the Patent Office.

NOTICE.—WHEN THE NUMBER OF CLAIMS ALLOWED IS IN EXCESS OF 20,
NO SUM LESS THAN \$30 PLUS \$1 ADDITIONAL FOR EACH
CLAIM IN EXCESS OF TWENTY CAN BE ACCEPTED AS THE
FINAL FEE.

Respectfully,

Commy J. Cor

Commissioner of Patents.

Cushman, Bryant, Darby & Cushman,
Loan & Trust Bldg.,
Washington, D. C.

IN REMITTING THE FINAL FEE GIVE THE SERIAL NUMBER AT THE HEAD OF THIS NOTICE.

UNCERTIFIED CHECKS WILL NOT BE ACCEPTED.

1723

2001

SUPPLEMENTAL OATH

U. S. PATENT OFFICE

OCT 29 1934

ISSUE DIVISION

50

Albin H. Warth,
BOTTLE CAP SPOT MATERIAL,
Filed Nov. 7, 1930,
Serial No. 494,201,
Allowed October 5, 1934.

U. S. PATENT OFFICE
FILED

OCT 29 1934

CITY OF BALTIMORE)
 iss.
STATE OF MARYLAND)

DIVISION

Albin H. Warth, whose application for Letters Patent for Improvements in Bottle Cap Spot Material, was filed Nov. 7, 1930, Serial No. 494,201, and allowed October 5, 1934, being duly sworn, deposes and says that the subject matter of the allowed claims hereinafter appearing was part of his invention, was invented before he filed his original application, above identified for such invention, and that deponent does not know and does not believe that the same was known or used before his invention, or patented or described in a printed publication in any country more than two years before his application, or patented in a foreign country on an application filed by him or his legal representatives or assigns more than twelve months before his application, or in public use or on sale in this country for more than two years before the date of his application, and that the same has not been abandoned.

1. As a new article of manufacture, highly-flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive containing a rosin, damar gum and a vegetable oil and being substantially non-tacky at room temperature but fusible upon the application of

2002

heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure.

2. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible, heat fusible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

3. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing a resinous material adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

4. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing an adhesive resin adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substantially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

5. As a new article of manufacture, highly flexible material in strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with a continuous exposed layer of waterproof, flexible heat fusible and acid resistant adhesive containing a mixture of resins adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature but fusible upon the mere application of heat and being substan-

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1725

2003

tially non-softening at temperatures up to and including 170°F. wet heat and being substantially non-swelling and non-contracting under conditions of moisture variation.

Albin H. Warth

Subscribed and sworn to before me, this 18th day of
October, 1934.

Glenn E. Moore
Notary Public.

COMMISSION EXPIRES MAY 6, 1935

SEAL.

1726

2004

OFFICE TELEPHONE, NATIONAL 1798
RESIDENCE TELEPHONE, GEORGETOWN 2108

RECEIVED
FEB 16 1935
U. S. PATENT OFFICE

EDGAR J. CLARKSON
PATENTS AND PATENT CAUSES
1428 - G STREET N. W.
807 ALBEE BUILDING
WASHINGTON, D. C.

494201-16

Feb. 14, 1935.

Hon. Commissioner of Patents
Washington, D. C.

Sir:

Kindly furnish as soon as possible
certified copy of the file wrapper and contents
of application Serial No. 494,201, to Warth, filed Nov. 7, 1930.

In Warth's Patent 1,967,195 the
following paragraph is noted on page 1:

"This application is a division of my
copending application Ser. No. 494,201
filed Nov. 7, 1930 and the latter is a
division of my application Ser. No. 159,743,
filed Jan. 7th, 1927, now patent 1,788,260,
granted Jan. 6, 1931."

Inclosed find \$ to cover the cost
of the above.

Respectfully,

Hauff and Warland
c/o E.J. Clarkson
Box. 350

Hauff & Warland

*OK
E.J.C.*

Inf 2/15

in cl's ltr 2/24/35

1727

2005

(Copy)

LB

DEPARTMENT OF COMMERCE

UNITED STATES PATENT OFFICE

WASHINGTON

February 18, 1935

Cushman, Darby & Cushman,
American Security Bldg.,
Washington, D. C.

Gentlemen:

Request has been made by Hauff and Warland
for permission to obtain a copy of the application
of Warth, No. 494,201.

The request is based upon the statement
appearing in Warth's patent No. 1,967,195 that the
application on which that patent issued is a division
of application 494,201.

Action on this request will be withheld for
one week from this date to give you the opportunity
to state the objections, if any you have, to the
request being approved.

Very truly yours,

R. J. Whitehead

Law Examiner

26

1728

2006

ARLOW V. CUSHMAN
JOHN J. DARBY
WILLIAM H. CUSHMAN

CARROLL J. HESQUIRE
MAX D. LOUIS
BONHAM F. FREEB
JAMES W. DENT
C. WILLARD HAYES
ROGER D. GESSFORD
HARRY C. RILEY
BERN E. FOLKERS
GEORGE W. PORTER
JOHN W. HALEY
ROBERT T. SAMMONS

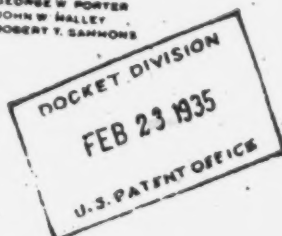
CUSHMAN, DARBY & CUSHMAN
ATTORNEYS AT LAW AND COUNSELORS IN PATENT CAUSES
AMERICAN SECURITY BUILDING
WASHINGTON, D. C.

February
Twenty one
1935

PATENTS
TRADE-MARKS & COPYRIGHTS

CABLE
"NYCUSHMAN" WASHINGTON

TELEPHONES
NATIONAL 3-400-3-401-3-402



Hon. Commissioner of Patents,
Washington, D. C.

Attention of Mr. E. F. Whitehead.

Subject: Application of Albin H. Earth
Serial No. 494,801.

Sir:

Acknowledging your letter of the 18th instant, we
have no objection to granting Messrs. Hauff & Warland
access to the above entitled application.

Respectfully,

JJD:KB

1729

2007

421

1930

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 1930
 1931
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8. Motion	DEC 9 1932	33.
9. Amended C + Aff	Feb 1-1933	34.
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11. Letter	FEB 6 1933	36.
12. Reconsideration Amended E	Feb 1-1934	37.
13. Rejection	FEB 20 1934	38.
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15. Oath	Oct 27 1934	40.
16. Petition for Access	Feb 16/35	41.
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Handwritten:
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RENEWAL

EX 201

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Fig. 1.



Fig. 2.

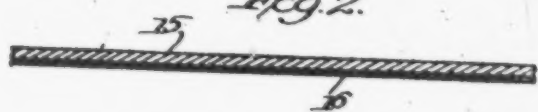


Fig. 3.

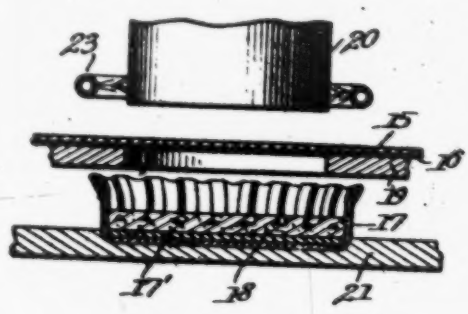


Fig. 4.

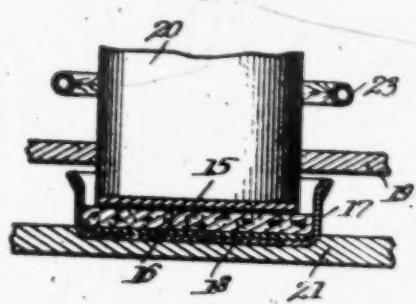


Fig. 5.

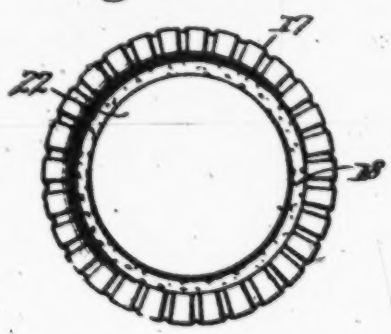


Fig. 6.



Inventor

Albin H. Warth.

Cushman Bryant Dwyer
Attorney

2/2/33

OCT 5 - 1934

213

This is an additional sheet of drawing and must be submitted to the Chief Draftsman before use.

BLANK

PAGE

1731

2009

DEFENDANT'S EXHIBIT B B B B B

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE

To all persons to whom these presents shall come, Greeting:

THIS IS TO CERTIFY that the annexed is a true copy from the records
of this office of the File Wrapper, Contents and Drawing,
in the matter of the

Abandoned Application of

Albin H. Warth,

Filed August 21, 1926,

Serial Number 130,631,

for

Improvement in Bottle Caps.

IN TESTIMONY WHEREOF I have hereunto set my
hand and caused the seal of the Patent Office to be
affixed, at the City of Washington, this twenty-third
day of January, in the year of our Lord one
thousand nine hundred and thirty-five and of the
Independence of the United States of America the
one hundred and fifty-ninth.

ATTEST:


J. B. Wilson
Chief of Division

Conway P. Cor
Commissioner of Patents.

1732

2010

NUMBER (Series of 1925)

130631

PATENT NO.

1926

DATED

DIV. 40

(EXR'S BOOK) 217-191-R

Name ALBIN H. WARTH

Assigning to me the
Academy The Brown Book & Seal Company of Baltimore City
a Corp of Maryland Inc. of New York N.Y. and
New York

of BALTIMORE

State of MARYLAND

Invention

BOTTLE CAPS

ORIGINAL

APPLICATION FILED COMPLETE AUG 21, 1908

Petition, Specification,

Oath, First Fee \$50,

1 sheets Drawings,

AUG 21, 1908

Examined and passed for Issue \$20

Ex. Dts.

Notice of Allowance \$20

By Commissioner

Final Fee \$20

Attorney PHILIPP, SAWYER, RICE & KENNEDY 220 BROADWAY NEW YORK N Y

Associate Attorney

No. of Claims Allowed _____ First Claim _____ to O. G. Clerk _____ 5/8

Title as Allowed _____

Filed
 PARTS OF APPLICATION FILED
 Division of App. No.

RECEIVED

1733

2011

LAW OFFICE

PHILIPP SAWYER, RICE & KENNEDY.

107, Park Building, 222 Broadway.

RECORDED
AUG 22
1926
PATENT OFFICE

New York City, August 20, 1926.

Hon. Commissioner of Patents,
Washington, D. C.

Sir:

We send herewith petition, specification,
oath, and 1 sheet of drawings in an ap-
plication of Albin H. Warth
for patent on improvement in Bottle Caps

also check for \$30. in payment of first
Government fee.

Respectfully,

PHILIPP, SAWYER, RICE & KENNEDY,

Attorneys.

1734

2012

MAIL ROOM
AUG
21
1926
PATENT OFFICE

PETITION.

The Honorable Commissioner of Patents:

Your petitioner, Albin H. Warth, a citizen
of the United States, residing at Baltimore, ~~in~~
~~County of~~ and State of Maryland
(whose Post-Office address is c/o Crown Cork & Seal Co., 1511 Guilford
Avenue, Baltimore, Md.
prays that Letters Patent of the United States be granted to him
for the invention in BOTTLE CAPS

set forth in the annexed specification, and he hereby appoints Cleon J.
Sawyer, James Q. Rice, James J. Kennedy and Philip B. Philipp (of the firm
of Philipp, Sawyer, Rice & Kennedy, St. Paul Building, 220 Broadway, New
York, P. O. Box 164, City Hall Station), his attorneys, with full power of
substitution and revocation, to prosecute this application, to make altera-
tions and amendments therein, to receive the Patent, and to transact all
business in the Patent Office connected therewith.

Albin H. Warth

SPECIFICATION.

To all whom it may concern:

Be it known that I,
Albin H. Warth, a citizen of the United States,
residing at Baltimore, ~~County~~
~~of~~ and State of Maryland
have invented certain new and useful improvements in

BOTTLE CAPS

fully described and represented in the following specification and the
accompanying drawings forming a part of the same.

2013

This invention relates to bottle caps.

Closures of the well known crown cork type comprise a metal shell having a corrugated skirt and a resilient sealing disk, usually of cork. When a bottle is to be sealed, a closure is applied with heavy pressure, e.g. 500-600 lbs., to effect a tight seal between the disk and the bottle, and the skirt is crimped around a locking shoulder on the bottle to secure the cap in place.

For use in packaging various materials, particularly certain mineral waters, cork disks have been provided with a facing of tin foil to protect the material from the cork or the cork from the material. This facing is ordinarily of a diameter less than that of the cork disk, the diameter being such that the tin foil partly but not entirely overlaps the rim of the bottle mouth. Such crowns are known in the trade as spot center crowns. An objection to these tin foil spot crowns is that the metal is apt to corrode under the action of certain liquids, such as alkalinated and acidulated liquids. Moreover, these crowns are relatively expensive.

It is an object of the present invention to provide a faced bottle cap suitable for sealing various materials, including alkalinated and acidulated liquids. It is a further object of the invention to provide a closure of the kind referred to that is capable of withstanding usual sealing pressures: that is capable of effecting a uniform sealing, with leakage, for high carbonated pressures; and that is relatively inexpensive.

With these general objects, and others not specifically mentioned, in view, the invention consists in the article which will first be described in connection with the accompanying drawing and then more particularly pointed out.

In the drawing:

Figure 1 is a sectional view, somewhat exaggerated for purposes of illustration, of a bottle cap embodying the invention; and,

Figure 2 is a similar view showing the cap applied to a bottle.

Referring to the drawing, the closure shown as an example comprises a metal shell 11 having the usual corrugated skirt 12. Within the skirt is a cork sealing disk 13, which may be of either natural cork or composition cork. The cork disk is faced with a so-called spot center 14, that is, a facing that is smaller in diameter than the cork disk but partly overlaps the bottle mouth when the closure is applied to a bottle. As appears in Fig. 2, when the closure is applied to a bottle 15, the spot center overlaps the bottle mouth sufficiently to cover the mouth and prevent any contact between the bottle contents and the cork disk. At the same time, there is some sealing contact between the cork disk and the bottle.

The spot center 14 of the present invention is non-metallic. It is characterized by toughness sufficient to avoid splitting at its edge under the sealing pressure exerted in applying the closure, usually about 600 lbs. It is further characterized by elasticity sufficient to make and maintain a seal without leakage for high carbonation pressures, e.g. 60-100 lbs. A suitable material is a tough and flexible paper coated with varnish, pitch or the like, for example, a varnished express paper. Such papers are made wholly or largely from a sulfite pulp as distinguished from kraft and other papers made from a sulfate pulp. Kraft papers, however, may be used if sufficiently tough and elastic.

While the spot center may be formed and assembled in various ways, this may be conveniently accomplished by

cutting disks of the proper diameter from varnished paper stock and in the best embodiments of the invention the stock will be between .005" and .015" in thickness. This paper disk is then secured to the cork disk by means of a backing 16 of some elastic and adhesive tissue, e.g. gutta percha, by means of a heated plunger or the like. By so applying heat and pressure to the assembled cork and paper disks the gutta percha or like backing is rendered adhesive and the paper spot is firmly cemented to the cork. In this connection, it is noted that apparatus for cutting and assembling spot centers is known in the art.

The resulting closure has a spot center that is practically tasteless, colorless and that does not corrode under the action of alkalinated and acidulated liquids, as in the case of tin foil and other metallic facings. The spot center is sufficiently tough to withstand sealing pressures without splitting or breaking and sufficiently flexible and elastic to maintain a seal for carbonation pressures as high as 100 lbs. per square inch. The gutta percha tissue being elastic tends to aid in the sealing effect and being insoluble in water tends to prevent the loosening of the spot in long contact with bottled contents.

2016

WHAT IS CLAIMED IS:

87273
1,145,024
11

1. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a non-metallic spot facing for the sealing disk.

2. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a paper spot facing for the sealing disk.

3. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a spot facing for the sealing disk made of thin express paper characterized by toughness and elasticity.

4. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a paper spot facing for the sealing disk secured to the latter by an elastic adhesive tissue.

In testimony whereof, I have hereunto set my hand.

Albin H. Warth

OATH

State of Maryland

City of Baltimore

ss.:

Albin H. Warth

the above-named petitioner,

being duly sworn, deposes and says that he is a citizen of the United

States, and resident of Baltimore, County

of Maryland; that

he verily believes himself to be the original, first, and sole inventor of

the improvements in BOTTLE CAPS

described and claimed in the annexed specification; that he does not know and does not believe that the same was ever known or used before his invention or discovery thereof, or patented or described in any printed publication in any country before his invention or discovery thereof, or more than two years prior to this application, or in public use or on sale in the United States for more than two years prior to this application; that said invention has not been patented in any country foreign to the United States on an application filed by him or his legal representatives or assigns more than twelve months prior to this application; and that no application for patent on said improvements has been filed by him or his legal representatives or assigns in any country foreign to the United States.

Subscribed and sworn to before me

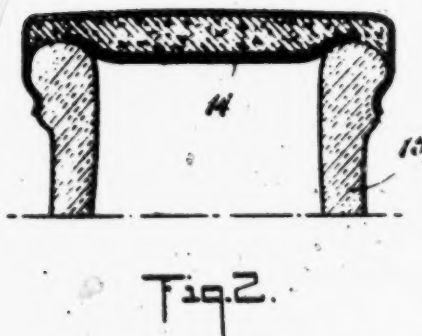
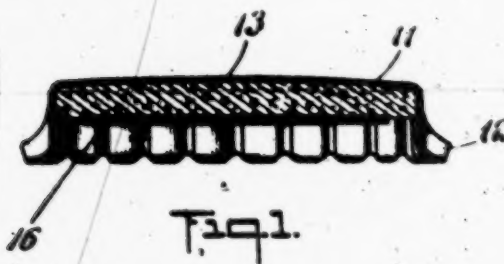
this 10th day of August, 1926.

Albin H. Warth

Forrester E. Keck
Notary Public
My commission expires
May 2, 1927

1740

2018



INVENTOR

Albert H. Warrick

Philip Sawyer Rice & Company

ATTORNEYS

1741

2019

No. 40 Form 287

Address
The Commissioner of Patents
and the Chief of Exam.

Willis J. ...
DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Page No. 8
...
...

Please find below a communication from the EXAMINER in
charge of this application.

Nov. 30, 1926.

MAILED

GPO 11-2888

Thomas E. Robertson
Commissioner of Patents

Applicant: Albin H. Barth

NOV 30 1926

Philipp. Sawyer, Rice &
Kennedy,
220 Broadway,
New York, N.Y.

Ser. No. 130,631
Filed Aug. 21, 1926.
For Bottle Caps.

References made of record:

(24)	Scott-	872,153	Nov. 26, 1907	215-39
(69)	Alberti-	1,199,026	Sep. 19, 1916	215-39
(54)	Gaston-	1,123,206	Dec. 29, 1914	215-39

On allowance of any claim or upon appeal revision as
to form may be required (Order 2749) May 27, 1922.

Claims 1, 2, 3, and 4 are rejected for lack of novelty
over Scott.

W.P.

J. H. ...
Examiner.

2020 1742



U. S. PATENT OFFICE

MAY 20 1927

DIV. 40 PAPER No 3

IN THE UNITED STATES PATENT OFFICE

Letter

In re application of
Albin H. Warth,
BOTTLE CAPS,
Serial No. 130,631,
Filed August 21, 1926. }

Div. 40 - Room 267

New York, May 18, 1927.

Hon. Commissioner of Patents,
Washington, D. C.

S i r :

In response to Official action of Nov. 30, 1926,
reconsideration is requested.

The claims stand rejected for lack of novelty
over Scott 872,153. It is submitted that there is noth-
ing in Scott to suggest the closure defined. Scott mere-
ly mentions the use of a pasteboard liner in recondition-
ing caps. But applicant is not claiming such a liner
broadly.

Claim 1 calls for a non-metallic spot facing.
The facing of Scott is not a spot facing and with Scott's
full facing of pasteboard it is practically impossible to
effect a properly tight seal. Claim 2 is along the same
lines. Claim 3 specifies a spot facing having certain
characteristics not remotely suggested by Scott. Claim
4 calls for a specific cementing tissue not suggested in
Scott.

An allowance is requested.

Respectfully submitted,

Albin H. Warth
By *Philip S. Langford*
J. H. Kennedy

Attorneys.

2021 1743

Div. 40 Exam 287 Hills/GW 200
DEPARTMENT OF COMMERCE
UNIT STATES PATENT OFFICE
WASHINGTON

Paper No. 4

All communications respecting this application should give the serial number, date of filing, and name of the applicant.

MAILED

Please find below a communication from the EXAMINER in June 23, 1927.
charge of this application.

Thomas E. Robertson
Commissioner of Patents.

JUN 23 1927

Applicant: Albin H. Warth,

Philipp, Sawyer, Rice
& Kennedy,
280 Broadway,
New York, N.Y.

Ser. No. 130,631,
Filed Aug. 21, 1926.
For BOTTLE CAPS.

Responsive to communication of May 19, 1927.

Claims 1, 2, 3 and 4 are rejected on Scott in view of Alberti, both of record. It would be merely mechanical skill to make the facing spot and to secure it to the sealing disk by an elastic adhesive tissue as this idea is seen at 15, Figure 4, of Alberti.

Mf.

Acting M. F. Knott
Examiner.

THIS ACTION MUST BE RESPONDED TO WITHIN SIX MONTHS. *Q*

2022 1744

DIVISION 37, Paper No.

For Div 40



DEC 10 1927

U. S. PATENT OFFICE

IN THE UNITED STATES PATENT OFFICE

U. S. PATENT OFFICE

In re application of
Albin H. Warth,
BOTTLE CAPS,
Serial No. 130,631,
Filed Aug. 21, 1926.

DEC 13 1927

Div. 40 - Room 267 DEC. 13 1927

Letter

New York, December 8, 1927.

Hon. Commissioner of Patents,
Washington, D. C.

S i r :

In response to Official action of June 23, 1927,
reconsideration is requested.

Applicant has devised a cap having certain definite advantages as set forth in the specification. No such cap is suggested by the references.

Scott merely mentions the use of a pasteboard bushing in temporarily re-sealing partly emptied bottles. Such a thing could not suggest a paper spot, even though metal spots were known. It is a makeshift and not part of the cap and would be next to valueless under ordinary capping and carbonated pressures. Moreover, spot facings present certain problems that could not be solved by any suggestion in the Scott patent. Claim 3 is obviously not met by anything in the references and it is submitted that applicant is entitled to the broader claims in view of the fact that to find an anticipation Scott would have to be unarrontably modified.

An allowance is requested.

Respectfully submitted,

Albin H. Warth
By Phyllis Samuels
Kennedy

Attorneys.

2023 1745

40
Address only
The Commissioner of Patents,
Washington, D. C.
and on the label by name

267
Hills/s
DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

Paper No. 6
All communications respecting this
application should give the serial number,
date of filing, and name of the applicant

Please find below a communication from the EXAMINER in
charge of this application.

Thomas E. Robertson
Commissioner of Patents

Jan. 19, 1928

Applicant: Albin W. Warth

Philipp. Sawyer, Rice &
Kennedy
220 Broadway
New York, N.Y.

Ser. No. 130,632
Filed Aug. 21, 1926
For Bottle Caps

MAILED

JAN 19 1928

In response to letter filed Dec. 9, 1927.

Claims 1, 2, 3, and 4 are rejected on Scott in view of
Alberts, both of record, for reasons of record.

Applicant's argument has been considered but it is still
not thought that the claims patentably distinguish over the
references as applied.

This action is final

W.H.

William
Examiner.

THIS ACTION MUST BE RESPONDED TO WITHIN SIX MONTHS.

1746

2024

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U. S. PATENT OFFICE

JUL 18 1928

DIV. 40 PAPER No. 7

appeal to Board

15 REC'd
JUL 17 1928 IN THE UNITED STATES PATENT OFFICE
C. C. U. S. PAT. OFFICE

In re application of :
Albin H. Warth, : Before the
Serial No. 250631, : Board of Appeals
Filed August 21, 1926, :
BOTTLE CAPS :

New York, July 17, 1928

To the Commissioner of Patents,

SIR:

I hereby appeal to the Board of Appeals from the decision of the principal examiner rendered January 19, 1928 rejecting claims 1, 2, 3 and 4 in this application.

The specific grounds of error alleged are as follows:

1. The Examiner erred in rejecting claims 1, 2, 3 and 4 and each of them on the references and grounds stated.

2. The Examiner erred in not allowing each of claims 1, 2, 3 and 4.

An oral hearing is requested.

Respectfully submitted,

Albin H. Warth
Philip S. Sanyal & Kennedy
Attorneys.

105-
BOARD OF APPEALS
JUL 18 1928
U. S. PATENT OFFICE

1747

2025

M/D

Paper No. 6

Department of Commerce
U. S. Patent Office
Washington

MAILED

JUL 28 1928

In re: Application of :
Albin H. Warth : July 28, 1928
Serial No. 130541 :
Filed August 21, 1926 : Appeal to Board of Appeals
Bottle Caps.

Examiner's Statement

This is an appeal on the following claims:

1. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a non-metallic spot facing for the sealing disk.
2. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a paper spot facing for the sealing disk.
3. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a spot facing for the sealing disk made of thin express paper characterized by toughness and elasticity.
4. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a paper spot facing for the sealing disk secured to the latter by an elastic adhesive tissue.

The references are:

(24)	Scott	572,153	Nov. 26, 1907	(215-38) and
(69)	Alberti	1,199,026	Sept. 19, 1915	(215-39)

The invention claimed consists of a bottle cap of the

-2-

crown cork type, comprising a metal shell, a cork sealing disk, and a paper spot facing secured to the disk by an elastic adhesive tissue.

Scott shows a metal cap of the crown cork type with a cork sealing disk therein covered with a small wafer or disk of pasteboard 10. See lines 104 and 105. Alberti shows a metal spot facing 15, Figure 3, stuck to the cork by an interposed cementing medium, albumen. See Page 2, lines 12 to 49.

The examiner holds that it would be merely mechanical skill to make the paper facing of Scott spot and to secure it to the sealing disk by an elastic adhesive tissue as this idea is disclosed at 15 and 16 Figure 4 of Alberti.

J. H. [Signature]
Respectfully,

M.A.

50/18

1749

2027

Address only
The Commissioner of Patents
Washington, D. C.

-201 a

Apparal No. 105 Paper No. 7

Notice of Hearing

Paper No.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

August 14 , 1928.

Sir:

The case of Albin H. Warth

Serial)
(No. 130,631 , will be heard by the Board of Ap-
Interference)
peals on the 1st day of May , 1929. .

The hearings will commence at ONE O'CLOCK and as soon as
the argument in one case is concluded the succeeding case will
be taken up.

If any party, or his attorney, shall not appear when the
case is called, his right to an oral hearing will be regarded
as waived.

The time allowed for arguments is as follows:

Ex parte cases, thirty minutes;
Inter partes appeals: interlocutory, thirty minutes each
side; final hearing, one hour each side.

By special leave, obtained before the argument is commenced,
the time may be extended.

The appellant shall have the right to open and conclude in
inter partes cases, and in such cases a full and fair opening
must be made.

Briefs in inter partes appeals must be filed in accordance
with the provisions of Rules 144 and 163.

Respectfully,

Thomas E. Robertson
Commissioner of Patents.

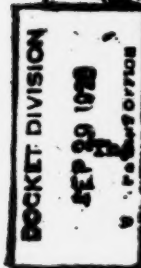
To

Messrs. Philipp, Sawyer, Rice & Kennedy, Attys.,
To 220 Broadway,
New York, N. Y.

1750

2028

#10 Doc



SUBSTITUTE POWER OF ATTORNEY

Honorable Commissioner of Patents,

Sir:

The undersigned hereby revokes any and all powers of Attorney heretofore given in the matter of the application filed by Albin H. Warth

August 21 1926

for Improvements in BOTTLE CAPS

Serial Number 130,631 and hereby appoints Gleason J. Sawyer, James J. Kennedy, Philip B. Philipp and Harris M. Humason (of the firm of Philipp, Sawyer, Rice & Kennedy, St. Paul Building, 220 Broadway, New York, N. Y., P. O. Box 164, City Hall Station,) his Attorneys, jointly and severally, with full power of substitution and revocation, to prosecute said application, to make alterations and amendments therein, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Signed at Baltimore, Md. this 27th day of September A. D. 1926.

CROWN CORN & STEEL COMPANY, INC.

By W. H. [Signature] Vice President
Assignee of entire title

Attenti

[Signature]
Assistant Secretary

1751

2029

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

#11
February 6, 1929.

Sir:

The case of Albin H. Warth

Serial No. 130,631

Your appeal in the case above referred to has been set
for hearing at 9:30 in the morning instead of 1:00 o'clock p. m.
on the date previously set.

Thomas E. Robertson
Commissioner of Patents.

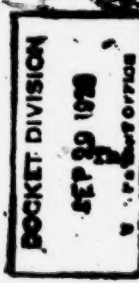
To

Messrs. Philipp, Sawyer, Rice and Kennedy,
220 Broadway,
New York, N. Y.

1750

2028

#10 Doc



SUBSTITUTE POWER OF ATTORNEY

Honorable Commissioner of Patents,

Sir:

The undersigned hereby revokes any and all powers of Attorney heretofore given in the matter of the application filed by Albin H. Warth August 21 1926 for Improvements in BOTTLE CAPS Serial Number 130,631 and hereby appoints Elson J. Sawyer, James J. Kennedy, Philip B. Philipp and Harris M. Humason (of the firm of Philipp, Sawyer, Rice & Kennedy, St. Paul Building, 220 Broadway, New York, N. Y., P. O. Box 164, City Hall Station,) his Attorneys, jointly and severally, with full power of substitution and revocation, to prosecute said application, to make alterations and amendments therein, to receive the Patent, and to transact all business in the Patent Office connected therewith.

Signed at Baltimore, Md. this 27th day of September A. D. 1928.

CROWN CORK & SEAL COMPANY, INC.

By W. H. [Signature] Vice President
Assignee of entire title

Attest:

[Signature]
Assistant Secretary

1751

2029

ADDRESS ONLY
THE COMMISSIONER OF PATENTS
WASHINGTON, D. C.

DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE
WASHINGTON

February 6, 1929.

Sir:

The case of Albin H. Warth

Serial No. 130,631

Your appeal in the case above referred to has been set
for hearing at 9:30 in the morning instead of 1:00 o'clock p. m.
on the date previously set.

Thomas E. Robertson

Commissioner of Patents.

To

Messrs. Philipp, Sawyer, Rice and Kennedy,
220 Broadway,
New York, N. Y.

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DEPARTMENT OF COMMERCE
UNITED STATES PATENT OFFICE.

Appeal No. 105

Paper No. 12

Brief.

MAY 17 1926
U.S. PATENT OFFICE

APPLICATION OF ALBIN H. WARTH,
BOTTLE CAPS,
SERIAL NO. 130,631,
FILED AUGUST 21, 1926.

(BEFORE THE BOARD OF
APPEALS)

BRIEF FOR APPLICANT.

This is an appeal from a final rejection by
the Principal Examiner of all the claims presented.

These claims are as follows:

1. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a non-metallic spot facing for the sealing disk.
2. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a paper spot facing for the sealing disk.
3. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a spot facing for the sealing disk made of thin express paper characterized by toughness and elasticity.
4. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk, and a paper spot facing for the sealing disk secured to the latter by an elastic adhesive tissue.

The references are:

Alberti, 1,199,026

Scott, 872,153.

APPLICANT'S INVENTION.

The invention relates to closures of the well-known crown cork type. These closures ordinarily comprise a metal shell having a corrugated skirt which is crimped over a shoulder on the bottle, and a disk of cork or the like which makes sealing contact with the bottle mouth. Such a closure is shown in the drawing, in which 11 represents the metal shell with skirt 12, and 13 represents the cork disk.

While the crown cork, through its general use with mineral waters, sodas, drugs, etc., has come to be taken more or less for granted, the bottlers' problems still continue.

For many uses it is necessary to protect the bottled liquid from contact with the cork, and it has long been the custom, in bottling mineral waters and other liquids, to cover the cork with a facing of tinfoil. But the foil is liable to corrode under the action of certain liquids, such as alkalinated and acidulated liquids. Moreover, tinfoil is relatively expensive.

Applicant's problem was, in part, to produce a closure in which the bottled contents would be protected from contact with the cork and which would obviate the objections to tinfoil. His closure has a facing that is non-metallic, i.e., paper. But he is not claiming broadly the use of paper as a protective facing.

If a facing covers the entire surface of the cork various difficulties are met with. It is difficult to secure the facing in place, the sealing function of the cork is impaired, and the facing is apt to tear. In applicant's construction, the paper facing does not cover the entire surface of the cork sealing disk. As clearly ap-

appears in Fig. 2 of the drawing, the facing 14 is small enough in diameter to permit some direct sealing contact between the cork and the lip of the bottle mouth. This direct contact is desirable for a proper seal. The facing, however, does extend far enough over the bottle lip to prevent contact between the cork and the bottled liquid. Thus, the facing performs its protective function without unduly impairing the sealing function of the cork disk.

A facing of this kind is known as a "spot" facing, and spot facings ~~per se~~ were not new with applicant. Tinfoil spots were known, as shown in the Alberti patent and as acknowledged in the specification.

But the solution of applicant's problem was not the simple substitution of a paper spot for the known tin foil spot. Crown corks are applied under high pressures, usually about 600 lbs. As stated in the specification, applicant's spot facing is characterized by toughness sufficient to avoid splitting at its edge under these high pressures. Moreover, certain liquids have a carbonation pressure of 60 to 100 lbs. Applicant's spot facing is further characterized by elasticity sufficient to make and maintain a seal without leakage for such carbonation pressures.

Such a closure is defined in claim 3 which calls for a spot facing made of "thin express paper characterized by toughness and elasticity."

THE REFERENCES.

The Examiner's position is apparently that there was no invention in making the "paper facing of Scott" a spot facing, in view of Alberti's tinfoil spot. In reaching this position, however, the Examiner has placed an unwarranted interpretation on the disclosure of Scott. The Scott patents shows a device for re-sealing bottles. That is, a

bottle may be opened, some of its contents drawn off, and the closure again affixed. The crown cork shown is a conventional crown cork without any facing. The disk of pasteboard 10, referred to by the Examiner, is a supplemental device. The Scott specification says (page 1, lines 99 et seq.) that if the cork disk is impaired when the bottle is opened, the disk or bushing 10 is put on in resealing to compensate. If one has a trunk that is wobbly, one reinforces it with a strap. But Scott's supplemental bushing is no more a part of the crown cork as an article of commerce than the strap is a part of the trunk.

There is, we submit, nothing in Scott's patent to suggest even remotely the use of a paper spot. No one, seeking to solve the problem of providing a closure for liquids for which a tinfoil spot was not suitable, could obtain any aid from a bushing such as that of Scott which is not part of the closure and is used only as an emergency makeshift.

Still less does Scott suggest the particular closure defined by claim 3. It is true that claims 1 and 2 do not include like limitations. But it is submitted that applicant, having been the first to produce a paper spot is entitled to claim it broadly.

Claim 4 recites that the paper spot is secured to the cork disk by an elastic adhesive tissue. As pointed out in the specification, this aids in obtaining a proper seal. Alberti refers to an adhesive and mentions albumen. Of course, adhesives ~~per se~~ were well known in all the arts. But there is nothing in Alberti's albumen adhesive to suggest applicant's elastic adhesive.

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To sum up, applicant was the first to produce a crown cork having a non-metallic (e.g., paper spot); this closure contributed to the art distinct advantages not present in the old tinfoil spot crown; and this closure is not disclosed or suggested in the references.

It is submitted that the Examiner should be reversed and the claims allowed.

Respectfully,

Albin N. Carlin
by *Hubert S. S. S. S. S.*
Attorneys.

New York, May 16 1929.

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Appeal No. 105 Paper No. 13
Decision.

Appeal No. 105

Hearing:
May 1, 1929



REH

IN THE UNITED STATES PATENT OFFICE

BEFORE THE BOARD OF APPEALS

Ex parte Albin H. Warth.

Application for Patent filed Aug. 21, 1926,
Serial No. 130,631. Bottle Caps.

Messrs. Philipp, Sawyer, Rice & Kennedy for applicant.

This is an appeal from the action of the examiner
finally rejecting claims 1 to 4, inclusive.

Claim 1 is representative and is as follows:-

1. A bottle cap of the crown cork type comprising a metal shell, a cork sealing disk and a non-metallic spot facing for the sealing disk.

The references relied upon are:-

Scott,
Alberti,

872,153,
1,199,026,

Nov. 26, 1907,
Sept. 19, 1916.

This application relates to a bottle cap of the conventional crown cork type to which a disk of tough paper has been secured to the inner wall of the cork by elastic cement. The purpose of the paper is to prevent the contact

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Appeal No. 105 - - - - 2

of the liquid placed in the bottle with the cork.

The patent to Alberti discloses substantially the same arrangement except that tin foil is placed on the cap instead of paper. In both appellant's structure and that of Alberti the added disk does not extend to the outer edges of the cork and this, in both cases, is to permit the cork to engage the edge of the bottle where its sealing properties are effective. The patent to Scott discloses a bottle cap of the same character having a paper disk attached to the inner face of the cork; but in this case the disk is designed to be employed only with caps which have been used and have been somewhat deformed. The paper disk is intended to afford sufficient packing so that the cap may be reused. For this reason appellant contends that it does not teach the use of a supplemental disk in the manner disclosed by appellant and Alberti. While there is some force in appellant's contention, we do not consider that it would involve invention to substitute a paper disk for the tin foil disk of Alberti, especially as paper disks have been employed as shown by Scott, even though for a different purpose and extending to the outer edges of the cork. The use of elastic cement is, in our opinion, an obvious feature in attaching the disk.

The decision of the examiner is affirmed.

M. J. McNamee
Assistant Commissioner
A. R. Lee
Examiner-in-Chief
A. L. Thurber
Examiner-in-Chief

Board
of
Appeals.

August 5, 1929

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Crown Cork & Seal Company, Inc.

Baltimore, Md.

Paper No. 14

NEW PROCESS CORK CO. INC.
THE CROWN CORK & SEAL CO.
OF BALTIMORE CITY
CONSOLIDATED

ATTORNEY'S ROOM

AUG 6 1930

U. S. PATENT OFFICE

August 5th, 1930.

IN THE UNITED STATES PATENT OFFICE.

Name: Albin H. Warth

Serial No: 130631

Filing Date: August 26th, 1926.

Crown Cork and Seal Company, Inc., assignee of record
of the entire right, title and interest in the above entitled
application,

hereby gives

Messrs. Cushman, Bryant & Darby, a firm composed of Arlon V. Cushman,
Arthur L. Bryant, and John J. Darby, whose registry number is 7196,
access to the above application with power to inspect the application
file in the Patent Office and make copies of all papers.

CROWN CORK & SEAL COMPANY, Inc.,

J. H. Suter
Vice-President

*approved,
E. W. Chapin
aug. 6 1930.*

Witnessed Aug 5/30

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OFFICE TELEPHONE, NATIONAL 1758
RESIDENCE TELEPHONE GEORGIA 2102

EDGAR J. CLARKSON
PATENTS AND PATENT CAUSES
1426 - G STREET N. W.
907 ALBEX BUILDING
WASHINGTON, D. C.

Paper # 15

Jan. 8, 1935.

Hon. Commissioner of Patents
Washington, D. C.

Sir:

Please furnish as soon as possible a
certified copy of the file wrapper and contents
of the following application:

Albin H. Warth (*Abandoned*)
Ser. No. 130,631
Filed Aug. 21, 1926.

In a suit Crown Cork & Seal Co v. Gutmann
in answer to interrogatory No 34 this application was identified
deponent state that Defendant may have access thereto.

Enclosed please find \$ to cover the cost
of the above.

Respectfully

Samuel Warland
Attorney for Gutmann

% E.J. Clarkson
Box. 350

*Approved Jan. 14, 1935
E. J. Clarkson*
Consent is hereby given to inspect
the above identified application and
to make copies thereof.

CROWN CORK & SEAL COMPANY, INC.

By

E. J. Clarkson
Vice President

8-21-26
4/23/28

3-421

1926

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ABANDONED

130631

Div 4C

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198 R

O. G. FIG.
CLASS
SUB. CLASS

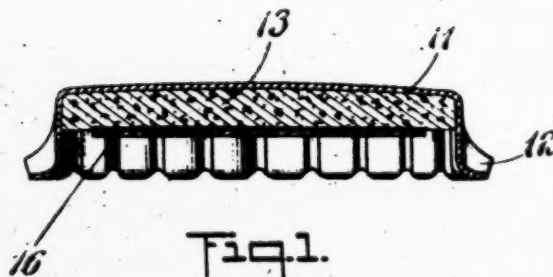


Fig. 1.



Fig. 2.

INVENTOR
Alvin N. Warick
Philip S. Lawry, Jr. & Henry
ATTORNEY

[fol. 2041] DEFENDANT'S EXHIBIT DDDDD

IN THE UNITED STATES PATENT OFFICE

Interference No. 66,201

WARTH

VS.

JOHNSON

DISTRICT OF COLUMBIA, SS:

John J. Darby, being first duly sworn, deposes and says:

1. That he is a member of the firm of Cushman, Darby & Cushman, attorneys for Warth in the above entitled interference.
2. That deponent has been instructed by the assignee of the Warth application to file suit for patent infringement against Ferdinand Gutmann & Co. of Brooklyn, New York, and that one of the patents to be included in said suit is Reissue 19,117, Warth, March 20, 1934.
3. That deponent has personally observed the operations in the factory of Ferdinand Gutmann & Co., and believes the same to be a clear infringement of not only the four claims of said reissue patent, but also of each of the claims involved in the above entitled interference.
4. That the Warth application in interference is divisional with respect to the said Reissue patent 19,117, and that it is [fol. 2042] therefore desirable to include in the prospective suit the subject matter in interference, as well as the said reissue patent.
5. That if priority is awarded Warth in this interference, as deponent believes should be done, the patent resulting from the Warth application in interference will be included in said suit.
6. That the said Ferdinand Gutmann & Co., is, in deponent's judgment, infringing the rights of Warth's assignee under the said reissue patent, and that the said assignee is being seriously damaged by the use of the method covered by said patent, as well as use by the said Ferdinand Gutmann & Co., of the method involved in interference.

7. That deponent has been instructed by the assignee of the Warth application to expedite in every way possible the issuance of the patent on the Warth application in interference, and will do so not only throughout this interference, but in any subsequent ex. parte prosecution of the Warth application.

Further deponent sayeth not.

John J. Darby.

Subscribed and sworn to before me this 2nd day of April, 1934. Theresa Buckhantz, Notary Public.
(Seal.)

[fol. 2043] DEFENDANT'S EXHIBIT EEEEE

IN THE UNITED STATES PATENT OFFICE

Before the Examiner of Interferences

Interference No. 66,201

JOHN A. JOHNSON

vs.

ALBIN H. WARTH

Subject-Matter: Method and Apparatus for Assembling Linings in Closure Caps

Preliminary Statement of John A. Johnson

STATE OF NEW YORK,
County of Kings, ss:

John A. Johnson, being duly sworn, deposes and says that he is a party to the above-entitled interference No. 66,201 declared by the Commissioner of Patents April 20, 1933, between Letters Patent No. 1,852,578, issued to him April 5, 1932, for Method and Apparatus for Assembling Linings in Receptacle Closure Caps, on application Serial No. 409,793 filed by him on or about November 26, 1929, and an application of Albin H. Warth for Method of Manufacturing Bottle Caps and Apparatus Therefor: That he conceived the invention set forth in the declaration of interfer-

ence in the fall of 1925; that a drawing was first made of said invention during the fall of 1925 and further drawings [fol. 2044] were made in the fall of 1927; that he first disclosed the invention to others in the fall of 1925, and made further disclosures at various times from the first disclosure up to the filing, November 26, 1929, of the application for said Letters Patent No. 1,852,578; that the first written description of the invention was made during October-November, 1929; that the invention was reduced to practice by constructing a full size apparatus for carrying out the invention and successfully operating the same during the fall of 1927, and that sixteen (16) apparatus for carrying out the invention set forth in the declaration of interference have been constructed.

John A. Johnson.

Subscribed and sworn to before me this 10th day of May, 1933. Wm. W. Hulst, Notary Public, Nassau County. Certificate filed in Kings County. Clerk's No. 50, Kings Co. Regs. No. 210. Commission expires March 30, 1935. (Seal.)

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(Here follows 1 photo, side folio 2045.)

"Thanks! You're a Life Saver!"

Motorists everywhere are looking for cold tasty carbonated beverages. Keep yours popular by sealing satisfaction in every bottle with Armstrong's Crowns.



Thirsty motorists soon brighten up when a tray of cold, sparkling carbonated beverages appears on the scene. Ice can keep these soft drinks cold—but only good crowns can keep them sparkling.

MOTORIST, golfer, swimmer, hiker—and nearly everyone else these days—is looking for thirst-satisfying carbonated beverages. You are probably getting your share of this business. Make sure of keeping it all through the year, by capping every bottle that leaves your plant with a tight-fitting Armstrong's Crown.

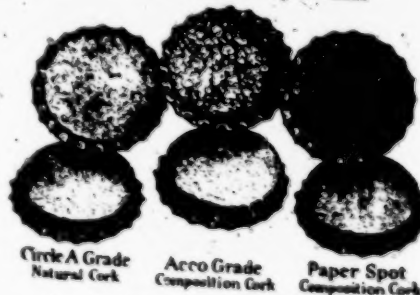
There is no lost flavor, no disappointed customers when Armstrong's Crowns are used. For more than seventy years Armstrong's have been Cork Headquarters. During this time they have processed cork through every step in its manufacture from tree to finished product. Their reputation for faithful service established over this period is your complete

assurance that every Armstrong's Crown is right. Conveniently located branch offices assure prompt deliveries on all orders, large or small. Address your order to the nearest branch office, or write directly to the Armstrong Cork Company, Cork Division, Crown Cap Section, Lancaster, Pennsylvania.

Branch Offices at Your Service

BOSTON	84 North Street
NEW YORK	80 Church Street
PITTSBURGH	24th Street
CINCINNATI	1017 Broadway
DETROIT	307 Garfield Building
ST. LOUIS	204 South 3rd Street
BALTIMORE	21 S. Charles Street
CHICAGO	111 North Canal Street
ATLANTA	140 Piedmont Ave., S. E.
PHILADELPHIA	400 N. 2nd Street
LANCASTER	Liberty Street
DALLAS	Lyons Bros. Co., P. O. Box 963

CORK MAKES THE CROWN!
Armstrong's
IS CORK HEADQUARTERS



Circle A Grade
Natural Cork

Aceto Grade
Composition Cork

Paper Spot
Composition Cork

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[fols. 2046-2047] ° IN UNITED STATES DISTRICT COURT, EAST-
ERN DISTRICT OF NEW YORK

Equity No. 7371

CROWN CORK & SEAL COMPANY, INC., Plaintiff,

against

FERDINAND GUTMANN & Co., Defendant

March 2, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff; George F. Scull and John J. Darby, of Counsel.

Hauff & Warland, Solicitors for Defendant; William E. Warland, Francis H. Warland, and N. L. Leek, of Counsel.

OPINION, CAMPBELL, D. J.

This is an action in equity in which plaintiff seeks relief by injunction and damages for the alleged infringement of the six following patents, for center spot crowns for bottles, and methods of making such spot crowns, to wit:

(1) Patent No. 1,339,066, issued to Charles E. McManus, for Bottle-Closure, dated May 4, 1920, on an application filed November 17, 1915; (2) Patent No. 1,899,782, issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc., for Material for Facing Bottle Caps and Method [fol. 2048] of Making Same, dated February 28, 1933, on an application filed December 17, 1929; (3) Patent No. 1,899,783, issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc., for Bottle Cap and Method of Manufacturing Same, dated February 28, 1933, on an application filed May 5, 1929, divided and this application filed October 31, 1930; (4) Reissue Patent No. 19,117, issued to Albin H. Warth, assignor, by mesne assignments, to Crown Cork & Seal Company, Inc., for Process of Producing Closures, dated March 20, 1934. Original No. 1,788,260, dated January 6, 1931, Serial No. 159,743, January 7, 1927. Application for reissue January 23, 1934; (5) Patent No. 1,956,481, issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc., for Spot Crown and Liner Material Therefor, dated April 24, 1934, on an application filed June 16, 1933; (6) Patent No. 1,967,195, issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc.,

for Method of Manufacturing Bottle Caps, dated July 17, 1934, on Original Application November 7, 1930, Serial No. 494,201, which in turn is a division of Serial No. 159,743, January 7, 1927, now Patent No. 1,788,260, dated January 6, 1931. Divided and this application filed April 4, 1933.

The general defenses of the defendant are, invalidity of all of the patents over the prior art, laches and estoppel on the part of the plaintiff as to one of the patents, non-infringement, lack of title to two of the patents in suit, owing to collusion in interference proceedings in the Patent Office, in which interference priority was purported to have been found in favor of the patentee Warth, prior use by the defendant and others as to some of the patents, prior use [fol. 2049] by the plaintiff as to some of the patents, the plaintiff has not come into Equity with clean hands, for the reason that it has suppressed evidence in the Patent Office in some of the interferences and applications, and also attempted to suppress evidence of other material facts. Defendant has also counterclaimed against the plaintiff alleging infringement of Patent No. 1,921,808, issued to Benno Cohn, assignor to Ferdinand Gutmann & Co., for Method of Making Closures, dated August 8, 1933, on an application filed July 20, 1932, the title to which patent is now in the defendant.

The plaintiff is a New York corporation with its principal factory at Baltimore, Maryland.

The defendant is a New York corporation with its factory in Brooklyn, New York.

Plaintiff's title to all of the said patents, except McManus No. 1,399,066 is stipulated.

As to the McManus Patent No. 1,399,066 plaintiff is the owner, and takes its title in the following manner:

Plaintiff was formed by a consolidation of New Process Cork Company and New York Improved Patents Corporation, each a corporation of the State of New York. The McManus patent in suit was assigned by McManus, to whom the patent issued to Cem Securities Corporation, which corporation granted an exclusive license under that as well as other patents to New Process Cork Company. The Cem Securities Corporation assigned the entire right, title and interest of the McManus patent in suit, together with other patents, to the plaintiff. No formal instrument transferring to plaintiff the exclusive license granted to the New Process [fol. 2050] Cork Company was shown, but since the New

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Process Cork Company was one of the merging companies from which plaintiff was formed, obviously the exclusive license was thus carried to plaintiff, thus vesting in plaintiff both the legal title and any outstanding exclusive license.

The crown cap to which the center spot of the patents in suit is applied, has a thin metal shell with corrugated skirts, adapted to be pressed into engagement with a lip on the bottle, to hold the cap tightly in place. Inside the cap is a disc of cork, either natural cork or composition cork, the latter being made up of small particles held together by a binder. Without something on the disc, the liquid contents of the bottle come directly into contact with the cork disc. This has created a problem as to certain beverages, which has been solved by the center spots.

The desirability of covering the cork closure with some material which would prevent contact between the beverage and the cork was appreciated by the art for a long time. Where the bottle contents are not under gas pressure, this can be done by the "overall" form of closure, in which a sheet of paper or foil covers the entire surface of the cushion disc, but as this interposes the paper or foil between the entire bottle neck and the cushion disc, it is not suitable for pressure beverages. The cushion discs in such overall crowns are cut out of a composite sheet of cork or pulp board, which has previously been faced with the facing material.

For high pressure beverages which are to be held for a long time without leaking or breaking down, the center spot is designed, and it is particularly desirable for beverages having a national distribution from one or more bottling points, and to enable the use of relatively cheap composition cork discs. The facing material is applied to the cork disc, so that the cork can still function as a seal against the mouth of the bottle while, at the same time, the periphery of the center spot is also engaged by the neck of the bottle to prevent, so far as possible, the liquid in the bottle from reaching the cork disc of the closure.

The center spot crown illustrated on Exhibit 17 may be of paper or metal foil, and is large enough to extend part way over the lip of the bottle mouth, leaving a considerable area of the lip to be contacted by the cork disc itself which forms the pressure holding seal, while the center spot

keeps the beverage from contacting with the cork. Before being applied to the bottle, the center spot lies flat on the surface of the cork, but when the crown is placed on the bottle under very heavy pressure, the cork adjacent to the periphery of the shell is highly compressed, resulting in a deformation of the center spot, which subjects the center spot to a considerable stretching pressure, and the spot material must be strong enough to withstand it.

It is essential for pressure beverages that the spot be accurately centered on the cork disc. If it is not, a part of the center spot may extend over the entire surface of the neck of the bottle at one side, and thus permit leaking and, at the other side, it would be pulled away from the neck of the bottle, and thus permit the bottle contents to contact with the cork.

To prevent complaints as to the results of the bottling, either on the part of the bottler or consumer, the center [fol. 2052] spot crowns must be substantially perfect as the caps are applied to the bottles at a rate of speed as high as 160 a minute, and the bottler has no time to inspect each center spot crown to make sure that it is satisfactory.

Both to stand shipment and because of the conditions obtaining in the bottle capping machine itself, it is essential that the spots be very tightly affixed to the discs.

To meet the competition with other forms of corking, the spot crowns must be made cheaply, and to do this the spots must be accurately and positively placed in position, at a high rate of speed, and with a minimum number of "rejects" requiring subsequent operations.

A tremendous amount of spot crowns are made and sold today, at from 22 to 24 cents a gross, which includes the entire crown, consisting of the shell with its ornamental printing, the composition cork disc, and the center spot.

By the methods of the patents in suit, plaintiff is now applying these spots to crowns at the rate of 500 per minute for each operating unit, and its sales at the annual rate of about 9,000,000 gross of center spot crowns constituting about 30% of its entire crown production.

Plaintiff has some 15 licensees under the patents in suit, who are also producing center spot crowns, and adding defendant's output, the total annual output of center spot crowns is of very large proportions.

The first patent in suit is the McManus patent No. 1,339,066, of which claims 3 and 8, reading as follows, are in suit:

[fol. 2053] Claim 3:

"3. A bottle closure embodying therein a metallic cap, a compressible disc within said cap, and a flexible disc of non-absorbent material superimposed upon and united by means of a fusible binding medium with, said compressible disc, said superimposed disc being of smaller diameter than said compressible disc, whereby a sufficient portion of the surface of said compressible disc is exposed, to permit the sealing of the bottle directly against said compressible disc and the portion of the compressible disc within the neck of the bottle is protected by said flexible disc."

Claim 8:

"8. A bottle closure embodying therein a metallic cap, a compressible disc secured within said cap by means of a fusible binding medium, and a flexible disc of non-absorbent material superimposed upon, and united by means of a fusible binding medium with, said compressible disc, said superimposed disc being of smaller diameter than said compressible disc, whereby a sufficient portion of the surface of said compressible disc is exposed to permit the sealing of the bottle directly against said compressible disc and the portion of the compressible disc within the neck of the bottle is protected by said flexible disc."

This patent describes the center spot substantially as I have hereinbefore described it.

The patentee in his specification showed his knowledge [fol. 2054] of what is required in a center spot, and disclosed various ways to make such a center spot.

At page 2, commencing at line 75 of the patent, McManus describes the attachment of the flexible disc (center spot) to the compressible disc (cork disc), either by the binding medium used to bind the granules of the composition disc, or by the kind of binding medium used to hold the disc to the cap shell.

At the time of the filing of the application, the material used to hold the disc in the cap was a gum and resin combination. This was a thermoplastic cement; that is, one

which becomes tacky when heated so that, when it is pressed into contact with a surface, it will adhere thereto when the cement cools.

At page 2, lines 81-84, McManus says: "By using this bond, the disc e and the disc f may be assembled in relation to the cap and to each other by one and the same operation if desired."

With the exception of the so-called "White Rock" center spot, there is universally used, as the adhesive for attaching the center spot, a heat fusible, one such as gutta percha or a thermoplastic nitrocellulose-resin combination, which is one of the elements of the claims 3 and 8 in suit. The fusible binding medium has displaced the water soluble adhesives and the heat-set adhesives, the use of which was previously attempted by others in what proved to be commercial failures.

Center spot caps adhered by a heat-fusible cement were not commercialized by McManus because the particular thermoplastic used by him, consisting of copal and rosin, [fol. 2055] with a little wax to soften it, was rather brittle, and he attempted in his commercial production to use a water soluble adhesive, but the limitations of this adhesive in his commercial production rendered it unsuccessful.

The fact still remains that McManus was the first to perceive and disclose to the world the use of a heat-fusible cement, to stick the center spot to the cork, and it is immaterial that neither the plaintiff nor defendant uses the particular kind of thermoplastic bond that McManus gave as an illustration. *duPont v. Glidden*, 67 Fed. (2d) 392, 393.

The defendant has offered in evidence as the alleged prior art thirteen patents, the showing of which was not explained on the trial, but they have been discussed by the counsel for the respective parties in their briefs, and I will briefly consider the same.

French Patent No. 415,794, to Societe American Cork & Seal Company, published October 4, 1910, shows the so-called "American" form of a crown illustrated on chart 17, in which the cushion was a rubber ring and the center member analogous to a center spot, was a cup-shaped piece of foil with the cup extending over the ring to hold the latter in place. The spot was not adhered to the cushion disc but was soldered to the metal shell where the two metals were in contact, and solder obviously would not be useful in adhering a spot to a cork disc.

French Patent No. 463,971, to Montaner & Co., published March 10, 1914, shows a plain tin center spot on a cork disc, which is to be fastened to the cork by being "stamped or pasted," without further suggestion as to how this "stamp-[fol. 2056] ing" or "pasting" is to be done, and, in particular, what kind of "paste" is to be used.

British Patent No. 16,075, A. D. 1913, to Ernest Frederic Edouard DeMuth, accepted July 9, 1914, shows a metal foil center spot adhered to the cushion disc "by cementing or in any other appropriate manner." There is no suggestion as to how this cementing is to be done, or what kind of cement is to be used.

British Patent No. 26,297, A. D. 1909, to John MacCormack and David Eglin McPhun, accepted November 10, 1910, shows a disc A of wood pulp, the drawing showing the wood pulp disc contacting with the bottle top, but with the tinfoil disc B no larger than the interior of the neck of the bottle. Such a construction experience has shown to be wholly inoperative. The patent also contains the general statement, that the tinfoil is to be coated with some "adhesive substance," without any specification of the kind of adhesive to be used.

Patent No. 1,199,026, to John Alberti, granted September 19, 1916, shows a bottle-closure with a center spot crown. This is the nearest reference to the patent in suit. It taught the use of a wet-heat-set adhesive (albumen), which is not now in use, but did not even suggest the use of a thermoplastic to adhere the spot to the cork. The heat-set adhesive of Alberti was the reverse of the heat-fusible adhesive of the patent in suit, which latter adhesive has proved to be the solution as is shown by its present day universal use. The sample center spot crowns made by Alberti, produced from the files of the Patent Office, which were filed in connection with his application for patent, do not prove that the wet-[fol. 2057] heat-set crowns were commercially practical, because as Alberti says, they were made partially by hand, which, done slowly and carefully, can be accomplished with almost any kind of adhesive.

Patent No. 903,865, to John A. Jones, granted November 17, 1908, shows a method for making composition cork discs by the use of a solution of pure rubber. It discloses no center spot.

Patent No. 1,110,138, to John A. Jones, granted September 8, 1914, shows an ordinary crown cap in which a cork

composition is held in the shell. It discloses no center spot nor any kind of covering for the disc.

Patent No. 993,288, to Leonard Bartlett, granted May 23, 1911, shows a machine for making a crown of the type which uses a ring instead of a disc, and leaves no resilient member in the center. In the center of the crown metal foil was used which was cupped and flanged so that the center could be adhered to the crown, and the flanges could be used to hold the rubber ring in place. The rubber ring took the place of the cork but was not itself adhered to the metal shell. The so-called center spot was used as a means to hold the rubber ring in the shell and at the same time protect the rubber ring from the contents of the bottle. The so-called center spot was held to the shell by solder.

Patent No. 1,195,392, to George M. C. Nielsen, granted August 22, 1916, shows an elaborate machine for the manufacture of the so-called, "White Rock" or "Stewart" center spot crown, and in Figs. 13 and 15 the crown itself. The spot is a circular piece of metal foil, having its edges turned up to form a cup, and the edges inserted into a circular slit cut in the cork, thus holding the spot mechanically [fol. 2058] and not adhesively to the cork. The necessity for using in this type of spot crown natural cork and not a composition cork disc adds greatly to the expense, and prevents general competition with the crowns of the patent in suit. As the spot must be of metal foil, and cannot be of paper, its field is restricted as metal foils cannot be used with acidulated beverages, like dry ginger ale. It is used substantially by one company only.

This was the only commercial spot crown prior to that of the McManus patent in suit, and has been used by the White Rock Company since 1914.

Patent No. 1,129,578, to George F. Knox, granted February 23, 1915, shows a better seal for the ordinary crown cap, to accomplish which the patentee proposed having the bottles specially made with a circular groove in the top into which the cork would be pressed. He also provides a pliable facing sheet, which may be of tinfoil and is of a diameter approaching that of the cork disc. He expects the swelling of the cork to break the spot when applied to his specially shaped bottle top. Fig. 3 shows a special form in which there are a series of perforations to hasten this breaking. No reference is made to any adhesion of the

covering to the cork, and none is needed because he has lapped the covering material around the edges of the cork disc, as shown in Fig. 2.

Patent No. 408,177, to Daniel W. Johnson, granted July 30, 1889; Patent No. 957,064, to Charles R. Keeran, granted May 3, 1910; and Patent No. 796,356, to Frederick Recht, granted August 1, 1905, all of these three patents being [fol. 2059] referred to only as showing the state of the art. Each of these patents shows a cap of an overall form, the cushion disc of which has its entire face covered with the protecting material which, rather than the cushion disc itself, really forms the seal. This cap is not satisfactory for pressure bottling. No adhesive is mentioned, the obvious intent being that the protecting material shall be merely laid on the surface of the cushion disc. Reference is made to "wax," but it is to be used to seal the protecting disc to the mouth of the jar rather than to the cushion disc. No center spots are shown in any of the patents. None of the patents of the prior art anticipates the patent in suit.

From all the evidence it seems quite clear to me that neither gutta percha nor any thermoplastic or heat-fusible adhesive was used by the plaintiff or any one prior to 1917, and this is not overcome by the testimony of Smith in the interference proceeding, given entirely from recollection, and as to date given by him, about 1914, he then said, "I am not sure what it was in 1914."

From my examination of the prior art, it appears that what McManus did was much greater than a mere change of the adhesive, in fact it was the solving of a real problem which practical men in the art had tried and failed to solve, and the turning of failure to success by means not even suggested by the prior art.

This, I believe, constituted invention and the McManus patent in suit is valid.

I do not agree with the defendant's contention that the McManus patent is limited to parchment paper. Foil was, at the time of the filing of the McManus application a well [fol. 2060] known equivalent for paper in the manufacture of spot caps of other construction and while claim 2 of the patent in suit limits the spot to papers, claims 3 and 8, which are here in suit, are not so limited but require a disc of non-absorbent material.

In claim 3 of the patent in suit, a center spot crown is de-

1
7
7
5

scribed, the novel feature of which is a fusible binding medium for adhering the spot to the cork disc, and in claim 8 there is described a center spot crown in which a fusible binding medium is used to hold the spot to the disc, and to hold the disc in the shell of the crown.

The stipulated crowns, representative of those made by the defendant, Exhibits 6, 7 and 8, use gutta percha to adhere the spot to the cork disc, and this is heat-fusible. In defendant's caps, Exhibits 4 and 5, an adhesive known as #4620 duPont is used, which is also heat-fusible. These caps infringe claim 3 of the McManus patent in suit.

In defendant's caps, Exhibits 4 and 8, the disc is attached to the shell by a fusible binding medium, and infringe claim 8 of the McManus patent in suit.

In 1927, the patentee McManus acquired control of the plaintiff, of which the Crown Cork & Seal Company was a predecessor, and defendant contends that because there is nothing to show that McManus sued the Crown Cork & Seal Company for its infringement of his patent, plaintiff is guilty of such laches against defendant that neither an injunction nor any accounting should be granted. This contention is not sustained except for its abandoned experiment of January, 1925, defendant did not manufacture [fol: 2061] an infringing crown until late in 1928. McManus was engaged in litigation with the International Cork Co. until 1926, when he acquired it. McManus had been a stockholder in the Crown Cork & Seal Company from 1922, during which time he had been endeavoring to acquire control of the company.

It does not seem to me that defendant can justify its infringement which commenced years later by the fact that McManus merged his company with Crown Cork & Seal Company instead of indulging in expensive litigation with it while he was engaged in patent litigation with another company. There is no evidence that defendant was misled by the conduct of McManus.

There is no evidence that it came to the attention of McManus that the other companies mentioned by plaintiff's witnesses were infringing, or its extent, but in any event, most of the companies mentioned accepted licenses under the McManus and other patents, as soon as the patent was called to their attention, and are paying royalties today.

The cases of *Dwight & Lloyd Sintering Co. v. Greenawalt*, 27 Fed. (2d) 823; *Banker v. Ford Motor Co.*, 69 Fed. (2d)

665; and *Westinghouse Electric & Mfg. Co. v. Jeffrey-DeWitt Insulator Co.*, 22 Fed. (2d) 277, are clearly distinguishable, as in none of them was it contended that there was any question of laches raised, because of the relationship of the plaintiff to other infringers than defendant.

The defendant also contends that the plaintiff is estopped from maintaining any suit against it based upon certain correspondence between the parties, and the assertion that [fol. 2062] plaintiff knew, in 1928, of defendant's infringement. This contention is not sustained. I find no reference in either letter as to patents, nor do I find any evidence to support defendant's assertion that plaintiff knew of defendant's infringement in 1928. The offer of plaintiff to sell to defendant, like other crown manufacturers, various kinds of cork discs, does not show any knowledge of the fact of defendant's infringement or its extent. The letter of 1930 did not induce defendant to undertake the manufacture of infringing crowns for Goetz, whom it had been selling since 1928, or for any one else.

While I well understand that each case involving the defense of laches and estoppel, must be decided on its own facts, it seems to me that applying the general rules laid down in *Benthall v. National*, 222 Fed. 918, 922; *Simpson v. Newport*, 18 Fed. (2d) 318; *Mills vs. Monarch*, 49 Fed. (2d) 28, 30; and *Walker on Patents*, 6th Ed. Vol. 1, p. 726, cited by plaintiff, the defendant cannot succeed in that defense.

There is no proof in the case at bar that defendant, to its disadvantage, relied upon any act or lack of action of the plaintiff, or that defendant, during the period in question, changed its position, or that its actions were based upon an assumption that plaintiff did not intend to enforce its patent rights. It is not shown that plaintiff had knowledge of defendant's infringement prior to 1933.

The McManus patent No. 1,339,066, as to the claims in suit, is valid and infringed.

The second patent in suit is the Warth patent No. 1,899,782, of which claims 7 and 9, reading as follows, are in suit:

[fol. 2063] Claim 7:

"7. As a new article of manufacture, laminated bottle cap spotting material in strip form comprising hard, tough

paper having relatively low absorptive properties, a coating of resistant varnish on one surface of the paper and bonded to the other surface a coating of gutta percha."

Claim 9:

"9. As a new article of manufacture, highly flexible material in sheet or strip form for the spotting of cushion discs of caps with center spots of less diameter than the disc diameter consisting of a continuous layer of metallic foil coated on one side with an exposed continuous layer of waterproof, flexible, and acid resistant adhesive adherent to the foil and adapted to adhere to a cork disc, said adhesive being substantially non-tacky at room temperature, but fusible upon the application of heat and substantially impervious to moisture whereby spots may be punched from the strip and united to the cushion discs of caps by the mere application of heat and pressure."

Claim 7 is limited to a laminated bottle cap spotting material of hard, tough paper in strip form, with a coating of resistant varnish on one surface, and a coating of gutta percha on the other. Claim 9 is for a strip of bottle cap spotting material consisting of a metal foil coated on one side with a thermoplastic adhesive.

[fol. 2064] The claims in suit are for the strip as a new article of manufacture, and not for the machine or method of manufacture.

Briefly described, the patent shows a strip of paper, or other material, drawn between a series of rollers, and thereby one side of the material is coated with a coat of gutta percha. This gutta percha material is fed through a cap-assembling machine, and spots of the size required for center spot crowns are punched from this material, and the gutta percha center spots are secured to the cork lining of a cap by means of heat and pressure, causing the gutta percha to adhere to the cork or composition cork lining.

The plaintiff uses these strips in connection with the Warth method of the patents in suit, to make paper spots and metal foil spots, respectively.

The defendant has offered in evidence as the alleged prior art, which were not explained on the trial but were discussed by the counsel for the respective parties in their briefs, the following patents:

Patent No. 1,213,926 to Charles E. McManus, granted January 30, 1917, a strip of tinfoil having a layer of paper, the exposed side of which was "gummed," and the other side bonded to the metal foil by some binding medium such as sodium silicate. The spotting strip of McManus was formed of two layers of material bonded to each other, the face of the paper being covered with a water-soluble adhesive, the gum being described as permitting the application of the material of the strip to a cork by dampening the cork itself.

Patent No. 1,638,541, to Charles E. McManus, shows a [fol. 2065] strip material to be used for "overall" discs to be placed in metal shells. The strip is made up of a layer of rubber to which is adhered a layer of paper having a cement binder to which another layer of paper is adhered. Discs are cut from this composite strip to be used instead of cork discs for bottle closures. This is not center spot material.

Patent No. 1,657,802, to Louvern G. Lange, granted January 31, 1928, shows a sheet of paper with one face coated with a water-soluble gum, and the other side coated with a quick-drying oil varnish. The cement of the sheet having been dried, it is run through water to wet the adhesive, and the dampened sheet is then pressed into contact with the pulp board to form a composite sheet from which the desired discs can be cut simultaneously across the entire width of the composite sheet. Discs for shells for jars for preserves, mayonnaise, mustard and the like can be punched from the composite strip material.

Patent No. 1,758,610, to Louvern G. Lange, granted May 13, 1930, contained but a single claim, which was granted to Warth as a result of interference No. 60,878, and is now claim 3 of the Warth patent in suit, No. 1,899,782.

In 1927, Warth built a combining machine by which strips of spotting material could have a thermoplastic adhesive combined with it, and had used the machine for combining metal foil with gutta-percha. The combined strip was first used in making the experimental lots of Warth paper spot crowns sent to Burroughs Bros., in April, 1927, and Macomber, in August, 1927. Lange's earliest date is his filing date of July 3, 1929.

Patent No. 983,319, to Smith, granted February 7, 1911, [fol. 2066] shows an overall type of closure, the sealing

pad of which has a sheet of Manila paper adhered to it, which paper is coated with a layer of cellulose varnish, and adhered to the pad by a water-soluble glue but not a thermoplastic.

Patent No. 1,238,156, to Reinhold Gustav Koch, granted August 28, 1917, shows an overall covering for a cork pad, the metal foil layer F being adhered to a paper covering by the vulcanized rubber E, the paper D, which is tough but absorbent, being adhered to the face of the cork a by the gutta percha C, and the cork a being adhered to the shell or cap A by a mixture of tartaric acid gum arabic and rosin, which by the application of heat sticks the cork disc to the cap.

Patent No. 1,358,834, to Frederick W. Farrell, granted November 16, 1920, shows a strip of paper coated with Trinidad asphalt, adapted to be used for sealing cartons.

Patent No. 408,177, to Daniel W. Johnson, granted July 30, 1889, which is referred to only as showing the state of the art, shows an overall sealing gasket in which a layer of parchment or parchmented fiber is secured to a felted body by cement, the kind not being mentioned.

Patent No. 957,064, to Charles R. Keeran, granted May 3, 1910, which is referred to only as showing the state of the art, shows an overall closure with a cushion of pulp board, over which is a layer of blotting paper saturated with sealing wax, rubber, or the like, and below that a disc of oil paper which does not overlap the bottle lip.

The prior art shows that many inventors had the idea of [fol. 2067] a spotting material coated in some manner with an adhesive.

It is true that none of them had the exact combination of Warth, but the use of paper or metal for spots, with gutta percha as the adhesive, although not coated on the same strip, was known and had been in use by plaintiff as early as 1917.

McManus, as early as November 17, 1915, the filing date of his patent in suit No. 1,339,066, had disclosed the use of a fusible binding material in the place of a water-soluble adhesive or a heat-set adhesive, and it does not seem to me that with this teaching and the knowledge that was possessed by the art, there was any invention in selecting gutta percha or duPont 4620 as an adhesive, and coating the strip therewith, but that it was a mere substitution of material, made when it became desirable to put into use

commercially the McManus cap, using the fusible binding material. This finding renders unnecessary any extended consideration of the questions raised by the defendant as to filing dates and the Lange interference proceeding, and also as to whether the defendant has established its defense of prior use in 1925; but in any event, it was established that defendant, in 1925, manufactured about 300,000 center spot crowns for the Inecto Company, using for the material from which the center spot was cut strips on which gutta percha and tinfoil were mounted together; and although the defendant abandoned its experiment, and whether it can be or cannot be considered as an anticipation, as to the spotting strip alone, it does show that the use of gutta percha and metal for spotting strips was known to the art.

[fol. 2068] The claims in suit of the Warth patent No. 1,899,782 do not show novelty or invention and are invalid.

The third patent in suit is Warth patent No. 1,899,783, of which claim 4, reading as follows, is the only one in issue:

Claim 4:

"4. A bottle closure comprising a metallic shell, a cushion disc in said shell, a facing disc of hard, high-gloss paper having a varnished outer surface, said disc being of smaller diameter than and concentric with said cushion disc, and a stratum of gutta percha co-extensive in area with the facing disc between the latter and the cushion disc and adhesively uniting the two discs."

This patent relates to bottle caps and the method of manufacturing the same, but claim 4 in suit relates only to the bottle cap and not to the method.

In his specification Warth describes at length what had preceded it, and then what he has done to overcome the difficulties.

He describes as the center spot material he uses (commencing p. 3, l. 33) a tough paper having a hard or high-gloss finish, for example such as termed a water-finish "which will not fracture, has an inherent resistance to liquids and gases, and serves as an excellent carrier for an exposed or outer facing of varnish and for a backing layer of water insoluble, heat-fusible, and acid and gas-resistant adhesive."

For his hard high-gloss paper he recommends "express [fol. 2069] paper, sulphite paper or bleached kraft paper having a water-finish, i. e., high-gloss finish" (p. 3, l. 75).

He uses a varnish which consists of "resin, China-wood oil and a drier, and containing a plasticizer (p. 4, l. 113), and for his adhesive gutta percha (p. 3, l. 111).

Warth says he began his investigation which led to this patent in suit in 1920, and that he did considerable experimenting.

The defendant offered in evidence the following alleged prior art, the showing of which was not explained on the trial, but they have been discussed by counsel for the respective parties in their briefs, and I will briefly consider the same.

Patent No. 1,339,066, to Charles E. McManus, granted May 4, 1920, which is here in suit, shows the use of a fusible binding medium in a center spot cap with a disc, "made of a hard parchment paper, or of any other paper so treated as to make it non-absorbent."

Patent No. 983,319, to Eugene C. Smith and Victor E. Smith, granted February 7, 1911, shows an overall seal in which a piece of Manila paper 3, was held to the pad by a water-soluble adhesive made up of glue, glycerine and sugar, with the outer coating of Manila paper covered with a celluloid varnish.

Patent No. 1,238,156, to Reinhold Gustav Koch, granted August 28, 1917, shows an "overall" covering for a cork disc, the material next to the bottle contents being the metal foil F. The foil is adhered to a sheet of paper by vulcanized rubber and the paper, in turn, is held to the cork by gutta percha.

[fol. 2070]. Patent No. 1,215,737, to George Emil Stahl, granted February 13, 1917, shows an overall closure. Next to the beverage was tissue paper, which was held to a jute stock paper layer by gutta percha with a couple of layers above it. It does not seem to me that this cap could be used for beer as Stahl thought, because its overall character would prevent it from holding high pressure beverages, and the tissue paper, if used for acidulated beverages, would be readily penetrated by the moisture.

Patent No. 1,779,884, to Louvern G. Lange, granted October 28, 1930. This patent does not show a paper spot crown of the Warth construction, and is not prior art to this patent in suit.

Patent No. 671,191, to Edward W. Hanauer, granted April 2, 1901, shows the use of gutta percha to fasten the turned-up bottom of trousers to the trousers leg.

Patent No. 957,064, to Charles R. Keeran, granted May 3, 1910, shows an overall closure of the "Mason jar" type, consisting of a piece of oil paper 9, which does not overlap the lip of a bottle, and is in contact with the contents of the bottle. It is adhered to a layer of blotting paper 8, by sealing wax, rubber or the like, and above but not adhered to it is a cushion disc 7, of soft pulp board.

Patent No. 408,177, to Daniel W. Johnson, granted July 30, 1889, shows a closure of the "Mason jar" type, with a "scaling gasket" of "parchment or parchmented fiber," secured to a "felted body" by being cemented in any suitable manner. This is not a paper spot crown.

Center spot crowns were not new with Warth but were known to the art for years before any date of invention [fol. 2071] shown by Warth, as was also the use of composition cork discs. The use of paper for the center spot or a fusible binding medium were not new, as both had been disclosed by McManus in his patent No. 1,339,066.

From a consideration of the prior art, it seems to me that if there be invention in this patent, it must reside in the particular kind of facing material, and the particular kind of binder; but in view of the teaching of the prior art, especially of McManus No. 1,339,066, there was no invention over McManus No. 1,339,066 or the prior art in selecting a facing disc of hard high-gloss paper or gutta percha as the adhesive, but all that Warth accomplished by his patent in suit, No. 1,899,783, resulted from a mere substitution of material when the plaintiff desired to commercially produce the heat-fusible caps suggested by McManus.

Warth patent in suit No. 1,899,783 shows no novelty or invention and is invalid.

The fourth patent in suit is Reissue Patent No. 19,117 to Albin H. Warth, granted March 20, 1934, and discloses a Process of Producing Closures, of which claims 1 and 3, reading as follows, are in suit:

Claim 1:

"1. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises

providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant [fol. 2072] adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material, and thereafter permitting the adhesive to cool and harden."

Claim 3:

"3. The improved method of manufacturing caps of the type having an interior disc of cushion material provided on its exposed face with a center spot, which comprises providing spot material in strip form having one surface formed of an exposed continuous coating of water resistant adhesive which is normally hard at room temperature but becomes tacky upon the application of heat and having another surface to be exposed to the contents of a capped container, cutting from said strip a facing spot having one surface completely coated with said adhesive with a cap disposed beneath the portion of the strip from which the spot is cut, whereby the cutting operation positions the spot [fol. 2073] upon the cushion material with the coating between the spot and the cushion material, and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere to the cushion material and thereafter permitting the adhesive to cool and harden while subjecting the assembled unit to pressure."

This patent is for a method which is described as follows:

Warth supplies a strip of thermoplastically-coated facing material, such as metal foil or paper coated with gutta percha to a punch which cooperates with a die. A line of assembled crowns (that is, crowns having the metal shell and the cork disc therein) is fed step by step beneath this

die. With the assembled crowns at rest beneath the die, the plunger descends, cuts a center spot from the strip of facing material and presses it down against the cork with the adhesive in contact with the cork. In his illustrative drawings Warth has shown heat applied to the cutting plunger. This warmed plunger supplies sufficient heat to the center spot to make the thermoplastic tacky when it is pressed against the cork. Then the cutting plunger rises and the crown, with the center spot stuck on it, moved to the next position, where it is subjected again to pressure from a heated plunger. Then this plunger rises and the crown moves on to the fifth step, where a cold plunger under pressure is applied to the spot, the pressure being maintained for a considerable time while the adhesive is cooling. [fol. 2074] This method has great advantages over the plaintiff's first or slide machine, which operated about 50 or 60 strokes a minute, and has enabled plaintiff to design machines which successfully spot 500 per minute from each unit.

Although not satisfactory, plaintiff continued to use the slide machines for a period of about eight years, until a new machine, based on ideas furnished by Warth, working on a different method, was designed, built, and put in operation.

The defendant offered in evidence the following alleged prior art, which was not explained on the trial but has been discussed in the briefs on behalf of the respective parties:

Patent No. 1,339,066, to Charles E. McManus, one of the patents in suit, granted May 4, 1920, disclosed the fundamental idea of utilizing a thermoplastic for adhering the center spot to the crown, but did not show a machine or a method for applying the spots at any satisfactory commercial rate of speed.

Patent No. 1,213,926, to Charles E. McManus, granted January 30, 1917, shows merely a strip of facing material for making center spots. McManus proposed to provide his foil with a sheet of paper adhered to the foil by water glass, the other face of the paper being covered with a water soluble gum. The adhesive is not thermoplastic, and no method is shown by which the spots could be applied at a high rate of speed.

Patent No. 1,402,780, to Charles E. McManus, granted January 10, 1922, shows a bottle cap making machine. Such a machine was used to a very small extent in making spot crowns for nearly ten years. The strip material was coated

[fol. 2075] with a water-soluble adhesive, the cork disc was dampened by a moistening dauber, and then the disc cut out of the strip material was pressed down on this wetted surface, in an attempt to cause it to adhere. According to the testimony of McManus, he could never get any speed out of such a machine because of the tendency of the spot to float on top of the crown before it could be adhered to it.

Patent No. 1,199,026, to John Alberti, granted September 19, 1916, and Patent No. 1,401,300, to John Alberti, granted December 27, 1921, the second patent being referred to only as showing the state of the art. The first of these patents shows a metal foil spot held to the cork by a heat-set adhesive albumen, and the second, the machine for applying it.

Patent No. 993,288, to Leonard Bartlett, granted May 23, 1911, shows a machine devised to make the so-called American type of center spot crown, in which a rubber ring-shaped gasket 20 is held in place by a cupped piece of aluminum 21, the flanges of which extend over the ring-gasket, and the center of which is pasted by some adhesive material to the metal shell itself. Bartlett refers to the adhesive material as "paste or other adhesive material," which is to be deposited in the shell and then the cupped piece of metal pressed down upon it.

Patent No. 1,603,786, to Melchor Marsa, granted October 19, 1926, referred to only as showing the state of the art, shows a method for adhering cork discs in the shells. A sheet of sheet metal is spotted with a resinous cement in the center, the shells are cut out with the resinous cement in the center, the disc is inserted in the shell, the cork disc 16 [fol. 2076] placed on it, and then the resinous cement is melted by a gas flame and subjected to pressure to cause the cork disc to adhere to the shell. Does not relate to center spot crowns.

Patent No. 887,883, to William H. Wheeler, granted May 19, 1908, referred to only as showing the state of the art. It does not refer to the center spot crown, but shows a crown assembling machine in which the cork disc is adhered to the shell by means of collets of paraffin paper.

Patent No. 792,284, to William Painter, granted June 13, 1905, and Patent No. 887,838, to William Painter, granted May 19, 1908, both of which patents are referred to only as showing the state of the art, show respectively the original crown cap and machine for making it. The cork disc is

held in the shell by means of an adhesive placed on a paper collet placed between the cork and the shell, the adhesive being heated and then submitted to pressure to cause the disc to adhere to the shell. Neither patent relates to center spot crowns.

An examination of the prior art patents, it is true, shows some suggestions in one patent and some in another, of some of the elements of the Warth invention, such as the idea of coating a strip with an adhesive, but not one that was thermoplastic, the idea of cutting out a disc and applying it to a cork, but none of them disclosed the Warth method. To none, whatever was the teaching of the prior art, did it suggest the possibility of a method such as Warth's; which could be used to produce center spot crowns in such commercial quantities, at a very high speed, which is an important consideration in crown cap production. *International v. New Process*, 6 Fed. (2d) 420.

It is quite possible to carry out the Warth method by the use of a plunger, to which the heat is directly applied, although in that case there must be careful control of the heat in order to prevent the punch from becoming so hot as to cause a gumming of the punch itself from the tacky adhesive, or so cold as to supply insufficient heat to cause the spot to adhere.

Warth disclosed his method and it was unnecessary for him to show any apparatus for carrying it out. He was not limited to the particular form of apparatus illustrated as being useful for carrying out his method. It is sufficient that it has been shown that his illustrative apparatus is wholly operative, even if it was not the best which could be devised for commercial operation.

The Warth method has had large commercial success.

Men skilled in the art had long sought by various methods to accomplish what Warth teaches, and the fact that he succeeded where they failed is an evidence of invention, and the fact that parts of his method were old does not negative invention, as by the use of all the elements of his method he produces a new result in a different way.

Defendant in addition to the prior art patents relies upon the alleged prior use by the defendant and the alleged prior use by the plaintiff to limit or invalidate the patents.

Without going into any extended description of the method the defendant contends it used in making the center

spot caps for the Inecto Company, whatever it did was a [fol. 2078] temporary makeshift, which was abandoned as soon as it was able to perfect the making of the White Rock crown.

The only element of which it was able to present other than purely oral testimony, based solely on recollection, was that it obtained rolls of tinfoil and had surgical tissue combined with this foil. Defendant did not produce the machine nor any of the spot crowns which it claims that it used and made, and neither such machine nor spot crowns are in existence. No such machine was reproduced and proof offered that the operation which is described was possible. No drawings or other contemporaneous documentary proof was offered as to the method which was carried out by the machine, or as to the construction of the machine itself. The evidence offered as to the attachment made by Nagy for defendant, having a die for cutting center spots, is immaterial to the issue, as that attachment was made for the White Rock type of crown, and defendant's contention that it was changed by defendant itself, to adapt it to the making of the spot caps for the Inecto Company, is not supported by any documentary evidence. The testimony of Benno Cohn, Secretary of the defendant, and Charles H. Rasmussen, Superintendent of the defendant, given ten years after the alleged event, and based entirely on recollection is the proof on which defendant relies as to the alleged method.

The remaining officers and employees of defendant called, were Jay Bernard Eisen, who did not enter the defendant's employ until after the alleged making of the crowns in question [fol. 2079] tion. Jesse Gutmann, Vice President and Sales Manager, who knew nothing as to manufacture and production of the alleged Inecto crowns, but did negotiate the sale of the center spots to the Inecto Company, Ferdinand Gutmann, President of the defendant, who knew nothing of their production, and Samuel Cohn, Treasurer of the defendant, who knew that the Inecto crowns were made and approved of the expenditures involved, but did not testify as to method. None of the defendant's mechanics were called, although it is claimed the changes to its mechanism were made by its own mechanics, nor were such mechanics named or the failure to call them explained, although Superintendent Rasmussen was requested to look them up and said he would do so, and defendant had available its employees' time-book going back as far as 1921.

The fact that defendant has sufficiently proved the purchase of the tinfoil strips in 1925 does not prove the method, nor does the fact that they were used in some manner prove that the Warth method was used, as there were many different ways in which the adhesive strip could have been used other than in the way described by the witnesses.

Without questioning in any way the belief of Cohn and Rasmussen in the truth of their testimony, it is too uncertain, based only on recollection of what is alleged to have happened ten years before, to furnish proof beyond reasonable doubt, to anticipate the Warth method patents in issue. And in addition we must not forget that even the alleged prior use was abandoned and not resorted to when three years later defendant began making spot crowns.

[fol. 2080] The evidence of plaintiff's expert Weisenburg corroborated by Wilbur, as to the reproduction of the machine described by Cohn, and the results obtained in following the method described by Cohn, as shown by the crowns offered in evidence, is quite convincing that it was not possible, with such a machine, to produce commercial spot crowns, which leads to the belief that Cohn and Rasmussen must unconsciously have made some error in their recollection after the long period of years.

Of course, in the limited time at Weisenburg's disposal during the trial, the tests were necessarily ex parte, but plaintiff offered to repeat the tests inter partes, which offer defendant ignored.

The defendant's excuses for abandoning its alleged prior use, without going into details, are not convincing, and the actions of the defendant when it decided to make the spot crowns in 1928, clearly stamp whatever it did in 1925 as an abandoned experiment. Further, the proofs as to the paraffin coating of the Inecto spot crowns lead me to the belief that there is some error as to the method which Cohn and Rasmussen described as that used in 1925.

The alleged prior use of plaintiff asserted by the defendant is that of plaintiff's first or slide machine, in which a strip of tinfoil and a separate strip of gutta percha tissue were fed together beneath a cutting punch which punched out the two discs and deposited them in a cavity, in a movable slide. Then, the slide moved horizontally to carry out the cutout discs beneath an electrically heated suction plunger which picked up the two discs out of the cavity in

the slide. Then, the slide again moved from beneath the [fol. 2081] punch back to its original position, and the heated plunger with the discs sucked against its face was moved downward to deposit the discs on the cork of an assembled crown, to stick the spot to the cork disc, the suction pressure being released at the same time and changed to blowing, to help remove the spot from the end of the heated punch. The pressure of this heated punch caused the gutta percha to stick to the cork and also to the foil spot. The finished crown was then ejected from the machine. The combination of steps defined in the Warth methods of the patents in suit are not found in the plaintiff's first or slide machine, and it does not anticipate.

Defendant contends that it does not infringe because in its machine heat is not applied directly to the punch. This contention appears to me to overlook the requirements of the claims.

Claims 1 and 3 each provide, "and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky thereby causing the spot to adhere to the cushion material."

It is true that the defendant as does the plaintiff in commercial practice, instead of applying the heat directly to the punch as illustrated in the drawing of the Warth reissue patent No. 19,117 in suit preliminarily heats the cork disc.

Defendant's electrical preheating and post heating plungers are as close to the punch as is practicable and engage the cork disc at stations immediately preceding and following the punch station. The sole purpose of preheating the cork immediately in advance of the punch is to create heat, which will be available at the instant the spot [fol. 2082] is deposited, so that there will be provided the combined effect of heat and pressure. In the defendant's Johnson machines, the temperature of the punch, although heat is not directly applied, is as high as 140° (gutta percha becomes tacky at about 120°). While the heat in the punch is not sufficient alone to effect the desired stick it enables the operation to be conducted with less heat being applied to the cork, which tends to blacken and become scorched when too much heat is applied.

The claims in suit are not limited to the application of heat directly to the punch, and they are not so limited by the drawing offered by Warth in the prosecution of his

patent, simply for the purpose of illustrating a suitable means for effecting the simultaneous application of heat and pressure at the instant of depositing the spot.

The prior art did not, nor do I find anything in the records of the Patent Office actions which limit the claims in suit to producing in any particular way the heat which is utilized at the instant of assembly.

The defendant's contention that it was using a method involving the application of pressure to the caps in a cooling drum while the adhesive cools and hardens, at least as early as August 8, 1933, which was prior to the application for reissue, has no bearing on the validity of claim 1 which appeared in the original patent and was carried over into the reissue. It has no bearing on claim 3, which is like claim 1, except that it specifies the additional step of applying pressure while the adhesive is cooling and hardening. The application for reissue was filed as soon as it was disclosed [fol. 2083] covered that the claims of the original patent did not specifically cover the "cooling under pressure" step, and even if defendant may have been using a process as defined in claim 3, including the cooling under pressure, prior to the date of application for reissue, such use does not anticipate claim 3.

Defendant infringed claim 1, carried over from the original patent, and since the reissue was filed to obtain more limited claims acquired no intervening rights. *Abercrombie & Fitch Co., et al. v. Baldwin, et al.*, 245 U. S. 198; *Babcock & Wilcox Co. v. Springfield Boiler Co., et al.*, 16 Fed. (2d) 964; *Ball and Roller Bearing Co. v. F. C. Sanford Mfg. Co.*, 297 Fed. 163; *Maitland v. Goetz Mfg. Co.*, 86 Fed. 124; *Vortex Mfg. Co., et al. v. F. N. Burt Co., Limited*, 297 Fed. 513; *Hawie Mfg. Co. v. Hatheway Mfg. Co., et al.*, 27 Fed. (2d) 937; *Steiner & Voegtly Hardware Co. v. Tabor Sash Co.*, 178 Fed. 831.

There was no laches in the application for the reissue which voided the claim. *Motion Picture Patents Co. v. Laemmle*, 214 Fed. 787.

The question of the speed of the defendant's machines does not seem to me to be in any sense controlling. The defendant's Cohn and Johnson machines are different from plaintiff's, but that machinery operates in accordance with the Warth method, and that defendant has not been able to equal plaintiff's high rate of production is no defense.

Elyria Iron & Steel Co. v. Mohegan Tube Co., 7 Fed. (2d) 830, 831; Waxham v. Smith and The Buckeye Incubator Company, 55 Sup. Ct., 277.

Defendant also denies infringement because of the difference in amount of pressure which it uses on its post-heat-[fol. 2084] ing plunger, or on its cutting punch, as compared with the pressure under which the spot is held while the adhesive is cooling. Defendant also attempts to distinguish from the Warth method when operating under the Cohn patent, in that it says, the cork disc has not been firmly adhered to the metal shell when the center spot is applied to the cork disc.

Neither the disclosure nor the claims of Warth limit the use of pressure solely at the cutting punch. Defendant applies heat and pressure to cause "the spot to adhere to the cushion material" or to "effect adhesion" to the cork before the plungers of the cooling drum are reached, and that constitutes infringement. The adhesion having been caused before the plungers of the cooling drum are reached, the pressure applied by the plungers is immaterial.

The Warth reissue patent, No. 19,117, as to the claims in suit is valid and infringed.

The fifth patent in suit is the Warth patent No. 1,956,481, of which claims 6 and 16, reading as follows, are in issue:

Claim 6:

"6. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil of less diameter than the cushion liner positioned on the latter, and a stratum of heat-fusible adhesive interposed between the facing and liner and uniting the two, said stratum comprising a cellulose derivative adhesive and a modifying agent enhancing the adhesive characteristics of said derivative."

[fol. 2085] Claim 16:

"16. In a cap which includes a metal shell, a cushion liner of cork, a center facing of metal foil, and a stratum of heat-fusible adhesive interposed between the facing and cork cushion and uniting the two, said stratum comprising a nitro-cellulose adhesive and resin."

The patent is for a spot crown and liner material therefor, and the specification describes a center spot crown,

in which the center spot is adhered to the cork disc by a suitable cellulose derivative, such as nitrocellulose, to which a modifying agent to enhance the adhesive characteristics of the cellulose derivative has been added, such modifying agent being a resin and preferably a synthetic resin.

The defendant offered in evidence the following alleged prior art patents, but did not explain them on the trial. They are discussed in the briefs of the respective parties.

Patent No. 1,199,026, to John Alberti, granted September 19, 1916, shows a closure with heat coagulated albumen adhesive.

Patent No. 1,339,066, to Charles E. McManus, granted May 4, 1920, shows Bottle-Closure with resin-thermoplastic adhesive.

Patent No. 1,710,453, to Maurice Valentine Hitt, granted April 23, 1929, shows a nitrocellulose coating composition and film made therefrom, which in addition to the nitrocellulose contains many solvents and plasticizers, and in some cases resins are added. The composition is not thermoplastic. The fact that the Hitt patent number may be [fol. 2086] found on the cans in which 4620 is contained, does not prove that the Hitt material is the same as 4620. While it may well be that 4620 may employ the invention of Hitt, it may, because of different proportions of the materials, or because different materials are used, be wholly unlike the composition of the Hitt patent for some purposes. This is the fact in so far as this case is concerned, as 4620 is a thermoplastic, and the material of the Hitt patent is not.

The Article in the June or July, 1932, number of the duPont Magazine, extolling the virtues of 4620.

Patent No. 1,325,075, to Joseph J. Byers, granted December 16, 1919, shows a composite sheet stuck together with some cellulose derivative mixed with a non-drying vegetable oil, such as castor oil. The use of nitrocellulose alone as an adhesive was known, and nitrocellulose as an adhesive was old, but it is not thermoplastic. The patentee on page 1, beginning at line 72, states that a cement may be prepared by dissolving some cellulose derivative in any suitable solvent, such as acetone and alcohol, and on page 3, lines 40 to 44, he also states that heat applied in conjunction with pressure will cause the substance to act as a permanent cement.

Patent No. 1,389,084, to Lawson B. Wilson, granted August 30, 1921, shows a plastic cement for repair or mending, comprising celluloid, acetone and a phenol, to which Wilson suggests may be added certain softening agents, fillers and pigments. Among the fillers suggested are shellac, gums and resins of various kinds. It is true that if phenol were omitted, and if the proper kind of resin, and [fol. 2087] in the correct proportions to the nitrocellulose were used, Wilson would have a thermoplastic cement, but Wilson makes no suggestion of the thermoplasticity, and no suggestion of omitting phenol.

Reissue patent No. 16,803, to Edmund M. Flaherty, granted November 29, 1927, shows a low viscosity lacquer and film produced therefrom. This lacquer is not thermoplastic, and I do not see the relevancy of that patent.

Patent No. 1,554,033, to Ebenezer Emmet Reid, granted September 15, 1925, shows a cellulose composition, which is a combination of a cellulose derivative with a butyl phthalate. No proof was offered to show whether butyl phthalate is or is not a resin, but as Reid says one of the uses to which his material may be put is for varnishes, it can not be a thermoplastic. A varnish which would become tacky at a low heat would be unusable.

Patent No. 983,319, to Eugene C. Smith and Victor E. Smith, granted February 7, 1911, shows an overall covering for a cork crown, the adhesive to be used being a water-soluble adhesive and not a thermoplastic, and consisting of glue, glycerine and sugar or molasses.

The following patents to Albin H. Warth, all of which are referred to as showing the state of the art.

Patent No. 1,867,637, granted July 19, 1932, shows a closure and interior facing therefor, using a gutta percha or gum adhesive.

Patent No. 1,908,498, granted May 9, 1933, shows method of manufacturing liner material for container closures, with a gutta percha adhesive.

[fol. 2088] Patent No. 1,788,260, granted January 6, 1931. This is the original reissue No. 19,117, and shows process of producing closures using gum adhesive mixed with vegetable oil.

The ordinary center spot cap disclosed in the patent in suit differs only from the old and well known type of center spot cap, in that instead of being secured by dammar

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gum, gutta percha, albumen, or any desired adhesive specified in the prior art, it is secured by means of a cellulose derivative adhesive, or specifically, a cellulose derivative and a resin.

It seems to me that the nitrocellulose adhesive called for by claims 6 and 16 is disclosed in the prior art, particularly in Byers patent No. 1,325,075.

In any event, the adhesive disclosed is a thermoplastic heat-fusible material, and its use represents only a substitution of material over the prior art, and no invention.

The contention of the plaintiff that Warth conceived the invention and reduced it to practice in the Fall of 1926 is erroneous. Whatever those experiments were, they seem to have been abandoned, because on receipt of the first sample of duPont Company 4620, January, 1932, Warth began to experiment with it the same as did the defendant, with the result that defendant made commercial shipments in June and July, 1933, whereas plaintiff did not use 4620 commercially until June, 1934.

If Warth had invented and reduced to practice the nitrocellulose resin adhesive in 1926, it is difficult to believe that he would have, about three years thereafter, made the affidavit filed May 5, 1929, in the prosecution of Serial No. [fol. 2089] 360,895, in which he claimed to have discovered the desirable properties of gutta percha as an adhesive for center spot caps, or made a duplicate of that affidavit on December 22, 1932, in Serial No. 492,546, filed October 31, 1930. This last mentioned affidavit was not shown to Dr. Warth but it appears in the certified copy of the file of No. 492,546, Exhibit A.

As 4620 is superior to gutta percha, and both of these affidavits were made after January, 1932, when Dr. Warth said they first received 4620, it seems quite clear to me that Dr. Warth had not invented and reduced to practice a cellulose derivative adhesive in the Fall of 1926 nor had he progressed very far with his experiments with 4620.

The testimony of Mr. McManus, President of the plaintiff, Mr. Weisenburg, plaintiff's engineer, and Mr. Wilbur, a chemist for plaintiff, is quite convincing, that Dr. Warth had not succeeded in 1930, and that Mr. Weisenburg and Mr. Wilbur were still working on nitrocellulose and resins in 1931. This is inconsistent with the plaintiff's claim of

invention and reduction to practice by Warth in the Fall of 1926.

Dr. Warth had been trying to obtain a suitable nitrocellulose adhesive from the duPont Company and had obtained several kinds of nitrocellulose adhesives from them.

Finally Mr. Foley, of the duPont Company, told Dr. Warth that the company had put out an adhesive, No. 4620, which he (Mr. Foley) thought would be suitable for Dr. Warth's purpose. Mr. Foley knew that Dr. Warth wanted such an adhesive for applying center spots to caps.

Both plaintiff and defendant are using the patented product [fol. 2090] of the duPont Company, and I am unable to find invention in the Warth patent in suit, No. 1,956,481.

The Warth patent No. 1,956,481, claims 6 and 16 in suit, is invalid for lack of invention.

The sixth patent in suit is the Warth patent No. 1,967,195; of which claims 1, 2 and 3, reading as follows, are in suit:

Claim 1:

"1. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, and severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads."

Claim 2:

"2. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive [fol. 2091] surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, and then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads."

Claim 3:

"3. The method of assembling linings for sealing pads in receptacle closure caps, consisting in providing caps with sealing pads therein and a web of lining material arranged with an adhesive surface non-viscous at normal temperature, heating the pads in the caps, severing the linings from the web of lining material and assembling the linings as they are severed from the web in the caps with the adhesive surface in contact with the heated pads to render the adhesive viscous and effect adhesion of the linings to the pads, then placing the linings in the caps under heat and pressure to effect an intimate adhesion between the linings and pads, and then placing the linings assembled in the caps under pressure during the cooling thereof."

This patent discloses a method of manufacturing bottle caps.

The method claimed comprises punching the center spot from a strip of thermoplastically-coated material, applying such spot to the cork disc with heat, obtained by preheating the cork disc, and pressure, and then allowing the adhesive to cool with pressure applied to the spot.

[fol. 2092] This is the same method as that described and claimed in Warth Reissue Patent No. 19,117, which was a generic method patent, except that in the method of Reissue Patent No. 19,117, he left it to choice as to how the heat for the adhesive was to be obtained, whereas in Patent No. 1,967,195 in suit, the specific patent, he included the additional limitation that the heat for the adhesive was to be obtained by preheating the cork disc.

The defendant offered in evidence the following alleged prior art patents, which were not explained on the trial, but were discussed in the briefs of the respective parties.

Patent No. 1,199,026, to John Alberti, granted September 19, 1916, shows a metal foil spot held to the cork by a heat-set adhesive albumen.

Patent No. 1,339,066, to Charles E. McManus, granted May 4, 1920, discloses the fundamental idea of utilizing a thermoplastic for adhering the center spot to the crown, but did not show a machine or a method for applying the spots at any satisfactory commercial rate of speed.

Patent No. 1,213,926, to Charles E. McManus, granted January 30, 1917, shows merely a strip of facing material

for making center spots. McManus proposed to provide his foil with a sheet of paper adhered to the foil by water-glass, the other face of the paper being covered with a water-soluble gum. The adhesive is not thermoplastic, and no method is shown by which the spots could be applied at a high rate of speed.

Patent No. 1,402,780, to Charles E. McManus, granted January 10, 1922, shows a bottle cap making machine. Such a machine was used to a very small extent in making spot [fol. 2093] crowns, for nearly ten years. The strip material was coated with a water-soluble adhesive, the cork disc was dampened by a moistening dauber, and then the disc cut out of the strip material was pressed down on this wetted surface, in an attempt to cause it to adhere. According to the testimony of McManus, he could never get any speed out of such a machine, because of the tendency of the spot to float on top of the crown before it could be adhered to it.

Patent No. 993,288, to Leonard Bartlett, granted May 23, 1911, shows a machine devised to make the so-called American type of center spot crown, in which a rubber ring-shaped gasket 20 is held in place by a cupped piece of aluminum 21, the flanges of which extend over the ring-gasket, and the center of which is pasted by some adhesive material to the metal shell itself. Bartlett refers to the adhesive material as "paste or other adhesive material," which is deposited in the shell, and then the cupped piece of metal pressed down upon it.

Patent No. 1,852,578, to John A. Johnson, granted April 5, 1932, shows a method and apparatus for assembling linings in receptacle closure caps. The method claims of that patent, 28, 29 and 30, were copied into the second divisional application, serial number 664,410, and the Warth-Johnson interference 66,201 was declared, which resulted in an award of priority to Warth. This interference will be more fully discussed later.

Patents to Alexander Bogdanffy, No. 1,169,608, granted January 25, 1916; No. 1,053,565, granted February 18, 1913; and No. 1,053,898, granted February 18, 1913. Each shows [fol. 2094] a machine for making the standard non-spotted crown cap, the cork disc being adhered to the metal shell by a heat-fusible (usually resinous) adhesive. None of them called for the heating of the cork disc before the spot is applied thereto.

Patents to William Painter, No. 468,226, granted February 2, 1892, No. 792,284, granted June 13, 1905, and No. 887,838, granted May 10, 1908; the last two referred to only as showing the state of the art. The first is for the original bottle-sealing device of Painter, and the two latter are for the original crown cork patents in which a heat-fusible adhesive was used to hold the cork disc to the shell.

Patent No. 1,401,300, to Emilio Alberti and John Alberti, granted December 27, 1921, referred to only as showing the state of the art, shows a machine for manufacturing closures for bottles and other receptacles. It does not teach the use of a thermoplastic adhesive, and did not suggest the application of heat to the cork before the spot is applied.

Patent No. 1,134,031, to Robert G. Clark, granted March 30, 1915, referred to only as showing the state of the art, shows bottle cap assembling machine, and has no bearing on any method of applying crown caps to corks.

Patent No. 887,883, to William H. Wheeler, granted May 19, 1908, referred to only as showing the state of the art, shows an assembling machine which has no relation to center spots.

As I have said when considering the prior art as to Warth Reissue Patent No. 19,117, and for the same reasons, the prior art does not suggest the possibility of a method such as Warth's, which could be used to produce center spot [fol. 2095] crowns in such commercial quantities, at very high speed.

It is unnecessary to repeat what I said with reference to the alleged prior uses by defendant and plaintiff, in my discussion of Warth Reissue Patent No. 19,117, or any other defenses, because whatever I then said, so far as it is applicable here, I reassert as though repeated here.

The parent Warth application resulting in his patent No. 1,788,260, and which later became Reissue No. 19,117, was filed on January 7, 1927, Serial No. 159,743. It contained in addition to the broad idea of using heat and pressure simultaneously with the deposit of the spot, the specific disclosure, as suitable procedure, the preheating step. It is true as contended by the defendant, the description of preheating which was originally contained in this application was cancelled by amendment, on December 3, 1930, but it is also true that at the time this description of the "preheating" procedure was cancelled, Warth had on file a divisional application, Serial No. 494,201, which had been

filed on November 7, 1930, prior to the date of cancellation of the descriptive matter from the parent case. From this divisional application, a second division, Serial No. 664,410, was filed on April 4, 1933, containing precisely the three claims in suit and the patent issued, after an interference on this application. Therefore, Warth had in the Patent Office a complete disclosure of this preheating, from January 7, 1927, when the parent application was filed, until April 4, 1933, when the application resulting in Warth Patent No. 1,967,195 in suit was filed. The subject matter was not [fol. 2096] abandoned, as suggested by defendant, but was specifically reserved by continuous inclusion in the divisional application, and later in the second division. This has been approved and is the usual practice. *Writer v. Kiwad*, 63 Fed. (2d) 259.

Defendant urges as a defense that it purchased certain machines from Johnson in 1928, and that having used the machines, it is entitled to continue to do so, as well as to use additional machines which it purchased in 1933.

This brings us to a consideration of the Warth-Johnson Interference, No. 66,201.

There was no delay in provoking the interference with Johnson.

Plaintiff discovered early in 1933, the Johnson patent No. 1,852,578, dated April 5, 1932, on an application filed November 26, 1929, and immediately provoked the interference by copying the claims of the patent.

Warth did not copy the claims in the first division, Serial No. 494,201, filed November 7, 1930, but carved out of the same the second division for the interference.

There was no delay on the part of Warth after receiving notice of the Johnson patent.

After a preliminary motion, Warth's attorneys proceeded to take testimony and subpoenaed Johnson as their first witness, and Johnson offered to settle.

A settlement was finally arrived at whereby Johnson assigned his patent No. 1,852,578 to plaintiff, and was given a license under his patent, and also under plaintiff's patent No. 1,788,260, to continue the manufacture of the machines for plaintiff's licensees.

[fol. 2097] Counsel for Johnson and Warth did not care to take the responsibility of deciding the question of priority between Warth and Johnson, therefore those instruments

were placed in escrow pending final determination of the interference by the Patent Office, and the assignment remained in escrow until the Patent Office decided the question at final hearing.

The decision of the Examiner of Interferences was in favor of Warth.

Defendant contends that plaintiff should have made an election as between the Johnson patent and Warth application, after the license and assignment were executed, rather than permit the Patent Office to settle the question, and in support of that contention refers to Rule 94 of the Patent Office Rules of Practice.

This contention was not sustained.

Plaintiff did not have the legal title entitling it to make such an election until the interference was decided by the Patent Office as the assignment was in escrow.

Notwithstanding that plaintiff was convinced that the claims properly belonged in the Warth application, it was not possible to make the election in favor of the Warth application, and plaintiff could pursue no other course.

The Patent Office was fully informed as to the situation.

Rule 94 did not apply as it required an election when two applications of common ownership are involved in an interference, but did not permit an election in favor of an application when it is involved in interference with a patent. Even if plaintiff had held the assignment which it did not, [fol. 2098] it could not have made the election in favor of the application. *Chillas v. Weisberg*, 1928 Commissioner's Decisions, p. 24.

Defendant cites *United Chromium v. General Motors Corp.*, 11 Fed. Supp. 694, but that case seems to me to be distinguishable, as in that case election was made in favor of the patentee by the applicant filing a concession of priority.

The decision of the Patent Office in an interference proceeding does not bind the Court, but the question of priority of invention, when properly raised, may be litigated in an action, and assuming that plaintiff on the evidence was convinced that Warth was the first inventor, it could not properly concede priority to Johnson, and with the assignment in escrow, it did not then have legal title to the Johnson patent.

Johnson's claims were limited to the step of preheating the cork, and as late as October, 1928, Johnson had not

manufactured a machine for practicing such a method. The earlier 1928 machines, sold to the Cuban concern in March, to Gutmann in July, and to Armstrong in May, had no preheater.

It appears to me that the only difference between these machines and the machine purchased by Gutmann in August, 1928, was the fact that a drum was applied to the latter machine, for permitting the crowns to cool under pressure.

Johnson did visit plaintiff's plant in the early part of 1928, and was taken by McManus into the spotting department, and during Johnson's visit there, McManus says there was some discussion of patents relating to the spotting machinery, and this is corroborated by Johnson's letter to the Armstrong Company, on April 24, 1928.

[fol. 2099] Although Johnson had been working since early in 1927, to perfect a machine, he had not discovered either the importance of cooling under pressure, or the advantage of preheating the cork immediately in advance of the cutting punch.

Warth's machines had been in use since 1926, drawings of the machines being in evidence. These drawings were for three machines to supplement the three identical Warth machines at that time in actual use, as shown by the January, 1927, appropriation for three additional machines.

The preheating was disclosed in the Warth application filed January 7, 1927.

The defendant's two machines, purchased in July and August, 1928, did not have a preheater, and did not embody the method of the Warth patent, No. 1,967,195, in suit.

The decision of the Patent Office in the interference was in entire accord with the facts.

The fact that Johnson, in 1929, built some machines for the plaintiff on special order for plaintiff's own use, does not affect the validity of the Warth patents, and does not anticipate a divisional application. *American Chain Co. v. Franklin New York Co.*, 34 Fed. (2d) 551-555.

There was no anticipation by defendant's 1928 use, whatever method it used.

Defendant purchased two machines from Johnson, in July and August, 1928, and it is not proved that its 1928 machines had a preheater; on the contrary, Johnson admitted that prior to October, 1928, he did not have preheaters on any machines, and there is no uncertainty on

this point, as the letters (Exhibit 36) show that he was then [fol. 2100] "working on what we call preheaters of the cork."

Johnson it is true testified, on direct examination, that the 1928 machines were all "like" his patent No. 1,852,578, and repeated this testimony when he identified the list of a number of machines; but he evidently did not mean that they had a preheater, since on cross examination he modified his testimony, when confronted by plaintiff with an actual photograph of March 1, 1928, Cuban machine, which he admitted had neither a drum nor a preheater. This machine, which Johnson said was exactly like the unsatisfactory machine shipped to the Armstrong Company, merely used two heating punches. Cohn admitted that the machine purchased by defendant, on July 17, 1928, was like the one shown in the photograph. The machine purchased by the defendant in August, 1928, had a drum, but there is no evidence that it had a preheater, and Johnson admits that it did not.

There is no evidence to show that the Johnson machines sold to others than plaintiff and identified on the list had a preheater, or what was their construction, aside from Johnson's statement, which he changed under cross examination. There is no proof of the date of the Johnson Catalogue, and it is therefore without value. The machines purchased by defendant from Johnson, in 1928, had no preheater, and I am convinced that defendant made no further purchase from Johnson until 1933, therefore the defendant has not proved any use of the preheating method, to anticipate the filing date of the first divisional application, November 7, 1930, or the filing date of the second divisional application, April [fol. 2101] 4, 1933. Even if there was evidence of the use of the Johnson machines during these periods, such user would not anticipate. From 1927 to 1930, Warth was prosecuting his broad claims to the method. The claims were not directed during this period to the Warth specific preheating step. Such manner of proceeding has been approved. *Hartford-Empire Co. v. Nivison Weiskopf*, 58 Fed. (2d) 701.

As soon as it came to Warth's attention that any one else was claiming the invention he, being unaware of what methods others were using, and having no knowledge of defendant's using the preheating method, proceeded as the statutes permitted, and in accordance with the practice recognized by the Patent Office and the courts. *Overland Co. v. Packard Co.*, 274 U. S. 417.

In making the claims to the preheating step Warth was covering what he had invented, without any intent to expand his disclosures to cover later methods which had come to his attention. This has been approved by the courts. *Carson v. American Smelting and Refining Co.*, 4 Fed. (2d) 463, 470; *Remington Cash Register Co. v. National Cash Register Co.*, 6 Fed. (2d) 614; *Overland Co. v. Packard Co.*, supra.

The case at bar is clearly distinguished on the facts from *Westinghouse Electric & Manufacturing Co. v. Jeffrey-DeWitt Insulator Co.*, supra, and *Dwight & Lloyd Sintering Co. v. Greenawalt*, supra. In the *Westinghouse* case, there was no proof of special circumstances, and in the parent application the patentee had not claimed the invention of his delayed divisional application, either generically or specifically. In the *Dwight & Lloyd* case, there had been [fol. 2102] open, notorious infringement for thirteen years, known to the plaintiff, who had been in interference proceedings with the defendant, and there were no special circumstances, as here, justifying the delay.

The contention of the defendant that if the Warth Reissue Patent No. 19,117 be interpreted to cover generically the step of preheating the pads, it anticipates the divisional Warth patent No. 1,967,195, is not sustained.

The claims in suit in the Reissue Patent No. 19,117 require "and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky."

The claims in suit in the divisional patent No. 1,967,195 require "heating the pads in the caps."

None of the claims of the divisional patent is readable upon the disclosure of the reissue, and therefore when the Reissue Patent expires, the public will be free to practice the method without infringing the divisional patent, that is, the public may employ any method of obtaining the heat at the instant of assembly except the specific "heating the pads in the caps" covered in the later patent.

The Reissue Patent is the generic and the divisional the specific patent, and therefore the reissue does not anticipate the divisional patent.

It does not seem to me that the result of the issuance of the divisional patent extends the monopoly of the Johnson patent. Johnson was not the first inventor of the method, and the patent could not afford a monopoly on the method.

There was no delay on the part of plaintiff when it first learned of the improper grant to Johnson, and to hold the patent invalid on that ground would be to penalize the [fol. 2103] plaintiff because of the inadvertent grant to another, who was not the original inventor.

In addition to what has been said with reference to Warth Reissue patent No. 19,117 as to infringement, which need not be repeated here, it is also true that the defendant does use the method of preheating as described in the claims in suit, of Warth patent No. 1,967,195.

The Warth patent No. 1,967,195 as to the claims in suit is valid and infringed.

This leaves for consideration only patent No. 1,921,808, issued to Benno Cohn, assignor to Ferdinand Gutmann & Co., granted August 8, 1933, pleaded by the defendant as a counterclaim. The defendant is the owner of this patent.

The patent is for a method. The empty shells are fed into the machine from a hopper, then heated, an adhesive placed in the metal shell, the cork disc inserted in the metal shell, and the caps are then carried to the spotting mechanism so that the cork (either natural or composition) liner is put in the shell and a center spot inserted, all in one machine.

There are three claims to the patent and all are in suit, but I need not quote them.

The reply pleaded a general denial, which raises only the issue of infringement.

The defendant's charge of infringement is predicated on the fact that the Crown Cap Manufacturing Company of Brooklyn sent a standard Johnson assembling machine to Nagy to have an attachment added, that would place center spots on the corks while the crown was being assembled, and that Nagy delivered such a machine to the Crown Cap Manufacturing Company early in 1933 or late in 1932.

In July, 1933, the Crown Cap Manufacturing Company [fol. 2104] sold its assets, including this machine, to plaintiff.

Defendant's witness Fries said that he could never get this machine to work so that it could produce commercially. Whether or not there was something wrong in the manner in which the Crown Cap Company attempted to operate this machine, as contended by defendant's counsel, Fries says that he never could fully determine what the difficulty was, otherwise he would have corrected it. It certainly was his intention to go on manufacturing in accordance with the

method of this combined machine. I therefore believe that the machine would not work to produce commercially.

Fries remained in charge for four months after July, 1933, when the plaintiff took over the assets of the Crown Cap Manufacturing Company. During those four months this machine was never operated by the Crown Cap Manufacturing Company, by him or by any one in that plant.

This machine was sent to the Baltimore plant of plaintiff, it is still on the skids, has never been used by plaintiff, and has never been set up for operation.

There is no proof of any use of this machine by the plaintiff, and if the testimony of Fries be accepted, and I see no reason why it should not be, the machine would not work to produce commercially, therefore there is no proof of infringement.

McManus says that such a machine was never considered by him as having any value, because it was slow, and that there was no advantage in having the spotting machine connected to the assembling machine.

[fol. 2105] Taking all that has been said into consideration with the fact that if properly workable, which it was not, this machine, which was experimental, would have had a rate of production of about 200 a minute, as against plaintiff's machine which produces 500 a minute, the mere possession of this machine raises no inference even of a threat of infringement.

More than an inference is necessary to prove infringement, particularly of a method patent.

The plaintiff does not and has not infringed.

The defendant's counterclaim as to patent No. 1,921,808 is dismissed, on the ground of non-infringement.

A decree may be entered in accordance with this opinion, in favor of the plaintiff against the defendant on McManus patent No. 1,339,066; Warth Reissue patent No. 19,117; and Warth patent No. 1,967,195; and dismissing the defendant's counterclaim on Cohn patent No. 1,921,808; with four-sevenths costs and disbursements; and in favor of the defendant against the plaintiff dismissing the bill of complaint on the merits as to Warth patent No. 1,899,782; Warth patent No. 1,899,783; and Warth patent No. 1,956,481; with three-sevenths costs and disbursements.

Settle decree on notice.

Submit proposed findings of fact and conclusions of law, in accordance with this opinion, for the assistance of the

Court; as provided by Rule 70-1/2 of the Equity Rules and Rule 11 of the Equity Rules of this Court.

[fol. 2106] IN UNITED STATES DISTRICT COURT

[Title omitted]

STIPULATION AS TO FINDINGS OF FACT AND CONCLUSIONS OF
LAW

It is hereby stipulated by and between the solicitors for the respective parties that the opinion of the Court filed herein March 2, 1936, may be considered as the findings of fact and conclusions of law in this case, pursuant to Rule 70 1/2 of the Equity Rules and Rule 11 of the Equity Rules of this Court, reserving to both parties any and all rights of appeal as to any and all errors of fact or law that may be embodied in such findings and conclusions.

Dated March 11, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

[fol. 2107] IN UNITED STATES DISTRICT COURT

Present: Hon. Marcus B. Campbell, U. S. District Judge.

In Equity. No. 7371

CROWN CORK & SEAL COMPANY, INC., Plaintiff,

VS.

FERDINAND GUTMANN & Co., Defendant

INTERLOCUTORY DECREE—March 23, 1936

This cause having come on to be heard upon the pleadings and proofs of the respective parties and having been submitted on briefs for the respective parties, the Court having considered the same, and the parties having stipulated that the opinion of the Court filed March 2, 1936, may be considered as the findings of fact and conclusions of law in this case, and as a compliance with Rule 70 1/2 of

the Equity Rules and Rule 11 of the Equity Rules of this Court, it is

Ordered, Adjudged and Decreed

1. That Letters Patent of the United States No. 1,339,066 issued to Charles E. McManus for Bottle Closures, dated May 4, 1920, are good and valid in law as to claims 3 and 8.

[fol. 2108] 2. That Reissue Letters Patent of the United States No. 19,117 issued to Albin H. Warth, assignor by mesne assignments to Crown Cork & Seal Company, Inc., for Process of Producing Closures, dated March 20, 1934, are good and valid in law as to claims 1 and 3.

3. That Letters Patent of the United States No. 1,967,195 issued to Albin H. Warth, assignor to Crown Cork & Seal Company, Inc., for Method of Manufacturing Bottle Caps, dated July 17, 1934, are good and valid in law as to claims 1, 2 and 3.

4. That the title to said Letters Patent No. 1,339,066, Reissue No. 19,117 and No. 1,967,195 and the inventions described and claimed in each of them is vested in the plaintiff.

5. That the defendant, Ferdinand Gutmann & Co., has infringed upon claims 3 and 8 of said Letters Patent No. 1,339,066 and upon claims 1 and 3 of said Reissue Letters Patent No. 19,117 and upon claims 1, 2 and 3 of said Letters Patent No. 1,967,195, and each of them, and upon the exclusive rights of the plaintiff thereunder.

6. That plaintiff recover from the defendant the gains, profits and advantages which it has received or made or which have arisen or accrued to it by reason of its said infringements and also the damages which the plaintiff has sustained by reason of said infringements.

7. That the said cause be referred to — — —, as master pro hac vice to ascertain, state and report to the Court [fol. 2109] separate accounts of the gains, profits and advantages which the defendant has received or which have arisen or accrued to it by reason of said infringements of claims 3 and 8 of said Letters Patent No. 1,339,066; claims 1 and 3 of said Reissue Letters Patent No. 19,117, and claims 1, 2 and 3 of said Letters Patent No. 1,967,195 and

also the damages plaintiff has sustained by reason of said infringements.

8. That the plaintiff on said accounting have the right to an examination of said defendant and its officers, agents, servants, attorneys and workmen *ore tenus* and otherwise and also the production of the books, vouchers and other documents of the defendant, and that the defendant and its officers, agents, servants, attorneys and workmen attend for such purpose before such master from time to time as said master shall direct, and that the master and each party may from time to time during such accounting apply to the Court at the foot of this decree for such further directions as may be necessary.

9. That the defendant and its officers, agents, employees, workmen and confederates be enjoined and restrained permanently by injunction, hereby authorized to be issued, from directly or indirectly practicing the processes of claims 1 and 3 of said Reissue Letters Patent No. 19,117 and claims 1, 2 and 3 of said Letters Patent No. 1,967,195, or making or causing to be made, using or causing to be used, selling or causing to be sold products embodying the inventions of claims 3 and 8 of said Letters Patent [fol. 2110] No. 1,339,066, and from infringing upon or violating the exclusive rights of the plaintiff thereunder in any way whatsoever.

10. That the bill of complaint be and it hereby is dismissed as to Letters Patent of the United States No. 1,899,782 dated February 28, 1933, No. 1,899,783 dated February 28, 1933, and No. 1,956,481 dated April 24, 1934.

11. That the counterclaim be and it hereby is dismissed.

12. That the plaintiff recover from the defendant four-sevenths and that the defendant recover from the plaintiff three-sevenths of the costs to be taxed herein.

Marcus B. Campbell, United States District Judge.

Approved as to form.

Gifford, Scull & Burgess, Solicitors for Plaintiff.

Hauff & Warland, Solicitors for Defendant.

[fol. 2111] IN UNITED STATES DISTRICT COURT

[Title omitted]

DEFENDANT'S PETITION FOR APPEAL

The defendant, Ferdinand Gutmann & Co., conceiving itself aggrieved by the Interlocutory Decree made and entered herein on the 23rd day of March, 1936, does hereby appeal to the United States Circuit Court of Appeals for the Second Circuit, from that part of said decree which

1. Holds the patent to McManus, #1,339,066, dated May 4th, 1920, good and valid in law as to claims 3 and 8 and that the defendant has infringed said claims.

2. From that part of said decree which holds that Reissue Letters Patent of the United States, #19,117 to Albin H. Warth, dated March 20th, 1934, are good and valid in law as to claims 1 and 3 and that the defendant has infringed said claims.

3. From that part of the decree which holds that Letters Patent of the United States, #1,967,195 to Albin H. Warth, [fol. 2112] dated July 17th, 1934, are good and valid in law as to claims 1, 2 and 3 and that the defendant has infringed said claims.

4. From that part of the decree which holds that the counterclaim of defendant be and is dismissed.

That the reasons for said appeal are specified in the Assignment of Errors which is filed herewith, and it prays that this appeal may be allowed and a citation granted directed to the above named Crown Cork & Seal Co., Inc., commanding it to appear before the United States Circuit Court of Appeals for the Second Circuit, to do and receive what may appertain to justice to be done in the premises, and that a transcript of the record, proceedings and papers upon which said decree was made, may be duly authenticated and sent to the United States Circuit Court of Appeals for the Second Circuit.

Hauff & Warland, Solicitors for Defendant.

Dated, New York, March 24th, 1936.

ORDER ALLOWING APPEAL

Ordered, that the foregoing appeal be, and the same hereby is allowed.

Marcus B. Campbell, United States District Judge.
Dated, Brooklyn, N. Y., March 26th, 1936.

[fol. 2113] IN UNITED STATES DISTRICT COURT

[Title omitted]

DEFENDANT'S ASSIGNMENT OF ERRORS

Now Comes the defendant, Ferdinand Gutmann & Co., and presents with its accompanying Petition for Appeal from the Interlocutory Decree entered herein, the following Assignment of Errors:

1. The Court erred in holding the McManus Patent No. 1,339,066 as to claims 3 and 8 thereof to be valid in law and infringed.
2. The Court erred in holding that claims 3 and 8 of the McManus Patent in issue are not anticipated by the prior art.
3. The Court erred in holding that neither gutta percha nor any thermoplastic or heat fusible adhesive was used by the plaintiff or anyone prior to 1917 in the manufacture of center spot caps. (W. E. W.)
4. The Court erred in not holding that the use of gutta percha as an adhesive for center spots was used prior to [fol. 2114] July 1, 1915, as appears from the plaintiff's own testimony and the Preliminary Statement made by plaintiff's assignor in Interference No. 60,878.
5. The Court erred in not holding that the use of gutta percha as an adhesive was used in the bottle cap art long prior to the date of the application for the McManus patent.
6. The Court erred in holding that there was no laches on the part of plaintiff and its predecessor in title, viz., McManus, in waiting fourteen years and four months before bringing suit on the McManus patent.

7. The Court erred in not holding that center spot crown caps made in accordance with the McManus patent were used by all the manufacturers of center spot crowns without molestation by the plaintiff or McManus, its predecessor in title, for seventeen years before the beginning of the present suit.

8. The Court erred in holding that the correspondence between plaintiff and defendant in 1930 did not constitute an estoppel by plaintiff.

9. The Court having found that center spot caps per se, secured by any adhesive, were old, erred in holding that the mere selection of a particular adhesive by McManus constituted invention.

10. The Court erred in holding that what McManus did was much greater than a mere change of the adhesive.

[fol. 2115] 11. The Court erred in holding that what McManus did was the solving of a real problem and the turning of failure to success by means not even suggested by the prior art.

12. The Court erred in holding that the McManus patent is not limited to paper or parchment.

13. The Court erred in holding there was no evidence that defendant was misled by the conduct of McManus and the plaintiff.

14. The court erred in holding that the Reissue Patent to Albin H. Warth No. 19,117 dated March 20th, 1934, was good and valid as to claims 1 and 3 thereof and infringed by the defendant.

15. The Court erred in holding that Warth was not limited to the particular form of apparatus illustrated.

16. The Court erred in holding that Warth in his Re-issue Patent No. 19,117, produced a new result in a different way.

17. The Court erred in broadly construing the Warth Re-issue Patent No. 19,117.

18. The Court erred in holding that the method set forth in Warth Re-issue Patent No. 19,117 was not disclosed in the prior art.

19. The Court, after finding that the patents to Bogdanffy and Painter showed that a heat fusible adhesive was used to [fol. 2116] secure the cork disc to the shell by the application of heat and pressure, erred in finding that there was invention in securing the center spot to the cork disc by the same adhesive and by the same method of utilizing heat and pressure that had been used in the Bogdanffy and Wheeler patents for securing the cork lining to the metal shell.

20. The Court erred in holding that the evidence offered as to the attachment made by Nagy for defendant having a die for cutting center spots is immaterial to the issue.

21. The Court erred in holding that the 300,000 caps having center spots cut from metal foil coated with gutta percha made by defendant for the Inecto Company was not an anticipation.

22. The Court erred in holding that the 300,000 caps made and sold to the Inecto Company by the defendant in 1925 was an abandoned experiment.

23. The Court erred in holding that the defendant's excuses for abandoning its alleged prior use without going into details were not convincing.

24. The Court erred in not holding that the heat and pressure used by plaintiff in its slide machine in 1915 anticipated claims 1 and 3 of the Warth Re-issue Patent in suit.

25. The Court erred in holding that claims 1 and 3 of the Warth Re-issue Patent in suit are not limited to the application of heat directly to the punch.

[fol. 2117] 26. The Court erred in holding that neither the prior art nor anything in the records of the Patent Office limits the claims in suit to producing in any particular way the heat which is utilized at the instant of assembly.

27. The Court erred in holding that there was no laches in the application for the Re-issue.

28. The Court erred in holding that neither the disclosure nor the claims of Warth limits the use of pressure solely at the cutting punch.

29. The Court erred in holding that defendant applies heat and pressure to cause the "spot to adhere to the

cushion material" or to "effect adhesion" to the cork before the plungers of the cooling drums are reached.

30. The Court erred in holding that the pressure applied by the plungers in the cooling drum in defendant's method is immaterial.

31. The Court erred in holding that the testimony of plaintiff's witnesses Weisenburger and Wilbur showed that with the method described by defendant's witness Cohn it was not possible to produce commercial spot crowns.

32. The Court erred in holding that claims 1, 2 and 3 of the patent to Warth 1,967,195 are valid in law and infringed by defendant.

33. The Court erred in holding that what it had previously said in its Opinion about the prior uses by plaintiff and defendant in connection with the Re-issue Patent 19,117 to Warth applied to Patent No. 1,967,195.

34. The Court erred in holding that Patent No. 1,967,195 to Warth, the application for which was filed on April 4th, [fol. 2118] 1933, was a proper division of Patent No. 1,788,260 issued on January 6th, 1931.

35. The Court erred in holding that Warth's application No. 494,201, filed November 7th, 1930, showed the subject matter of Patent No. 1,967,195.

36. The Court erred in holding that the preheating of the cork was disclosed in the Warth application filed January 7th, 1927.

37. The Court erred in holding that the two machines purchased by Johnson from defendant in July and August, 1928, did not have a pre-heater and did not embody the method of Warth Patent No. 1,967,195.

38. The Court erred in holding that there was no anticipation by defendant's 1928 use, whatever method it used.

39. The Court erred in holding that the machines purchased by defendant from Johnson in 1928 had no pre-heater and that defendant made no further purchase from Johnson until 1933.

40. The Court erred in overruling defendant's contention to the effect that if Re-issue Patent No. 19,117 be interpreted

to cover generically the step of pre-heating the pads, it anticipates the divisional Warth Patent No. 1,967,195.

41. The Court erred in holding that the issue of the divisional patent did not extend the monopoly of the Johnson patent.

[fol. 2119] 42. The Court erred in holding that Warth and not Johnson was the first inventor of the method set forth in Patent No. 1,967,195.

43. The Court erred in not holding that defendant was licensed to use the method shown in the Johnson patent in view of the fact that it had bought in good faith such patented machines from Johnson more than two years before the divisional application for Patent No. 1,967,195 in suit was filed.

44. The Court erred in not finding that the plaintiff had purchased four machines from Johnson like those shown in his Patent No. 1,852,578 in 1929 and that Warth was guilty of laches in not applying for Patent No. 1,967,195 until April 4th, 1933, more than four years after defendant bought machines from Johnson.

45. The Court erred in dismissing defendant's counterclaim on the Benno Cohn Patent No. 1,921,808 and refusing an injunction after finding that the plaintiff had purchased such a machine in 1933 and now has such machines in its plant.

Wherefore, the defendant prays that the Decree entered herein on the 23rd day of March, 1936, be reversed and that a Decree be entered dismissing the Bill of Complaint and granting an injunction against the plaintiff to defendant on its counterclaim for infringement of the Benno Cohn Patent No. 1,921,808.

Dated, New York, N. Y., March 24th, 1936.

Hauff & Warland, Solicitors for Defendant.

[fol. 2120] Citation, in usual form, showing service on Gifford, Scull & Burgess, omitted in printing.

[fol. 2121] IN UNITED STATES DISTRICT COURT

[Title omitted]

PLAINTIFF'S PETITION FOR APPEAL

The plaintiff, Crown Cork & Seal Company, Inc., conceiving itself aggrieved by the decree made and entered herein on the 23rd day of March, 1936, does hereby appeal from the said decree to the United States Circuit Court of Appeals for the Second Circuit for the reasons specified in the assignment of errors which is filed herewith; and it prays that this appeal may be allowed and a citation issued directed to the above named defendant, Ferdinand Gutmann & Company, commanding it to appear before the United States Circuit Court of Appeals for the Second Circuit, to do and receive what may appertain to justice to be done in the premises, and that a transcript of the record, proceedings and papers upon which said decree was made may be duly authenticated and sent to the United States Circuit Court of Appeals for the Second Circuit.

Gifford, Scull & Burgess, Solicitors for Plaintiff.

Dated, New York, N. Y., March 31st, 1936.

[fol. 2122] ORDER ALLOWING APPEAL

The parties having entered into a stipulation dispensing with the filing of appeal bonds and said stipulation having been approved by the Court, it is hereby

Ordered, that the foregoing petition for appeal be, and the same hereby is, allowed.

Dated April 1, 1936.

Marcus B. Campbell, United States District Judge.

IN UNITED STATES DISTRICT COURT

[Title omitted]

PLAINTIFF'S ASSIGNMENT OF ERRORS

Now, comes the plaintiff, Crown Cork & Seal Company, Inc., and presents with its accompanying petition for ap-

peal from the decree entered herein, the following assignment of errors:

1. The Court erred in dismissing the bill of complaint as to Letters Patent to Warth No. 1,899,783 and No. 1,956,481.

[fol. 2123] 2. The Court erred in failing to grant the relief prayed for in the bill of complaint as to Letters Patent to Warth No. 1,899,783 and No. 1,956,481.

3. The Court erred in that it did not enter a decree finding that Letters Patent No. 1,899,783 to Warth is valid as to claim 4 thereof and has been infringed by the defendant.

4. The Court erred in that it did not enter a decree finding that Letters Patent No. 1,956,481 to Warth is valid as to claims 6 and 16 thereof and has been infringed by the defendant.

5. The Court erred in that it did not enter a decree for an injunction restraining the defendant from infringement of Letters Patent No. 1,899,783 and No. 1,956,481.

6. The Court erred in that it did not enter a decree awarding plaintiff an accounting for profits and damages by reason of the infringement by the defendant of Letters Patent No. 1,899,783 and No. 1,956,481.

Wherefore, the plaintiff prays that the decree entered herein on the 23rd day of March, 1936, insofar as it relates to Letters Patent No. 1,899,783 and No. 1,956,481, and each of them, be reversed, and that a decree be entered in accordance with the prayers of the bill of complaint herein with regard to said Letters Patents, and each of them, with costs to the plaintiff.

Gifford, Seall & Burgess, Solicitors for Plaintiff.

Dated, New York, N. Y., March 31st, 1936.

[fol. 2124] Citation, in usual form, showing service on Hauff & Warland, omitted in printing.

[fol. 2125] IN UNITED STATES CIRCUIT COURT OF APPEALS
FOR THE SECOND CIRCUIT

[Title omitted]

STIPULATION AND ORDER WAIVING EQUITY RULE 75

It is Hereby Stipulated and Agreed by and between the solicitors for the respective parties hereto, subject to the [fol. 2126] approval of the Court, that the transcript of record on the appeals taken by both parties and involving six patents shall include all of the evidence adduced at the trial in the form of question and answer, in lieu of the condensed statement thereof under Equity Rule 75.

Dated April 2nd, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff-Appellant and Cross-Appellee. Hauff & Warland, Solicitors for Defendant-Appellee and Cross-Appellant.

So Ordered. Manton, United States Circuit Judge.

April 3, 1936.

[fol. 2127] IN UNITED STATES DISTRICT COURT

[Title omitted]

STIPULATION AND ORDER WAIVING BONDS

An Interlocutory Decree having been entered in the above entitled cause on the 23rd day of March, 1936, holding three of the patents in suit valid and infringed as to certain claims thereof and dismissing the defendant's counterclaim and also holding that three of the patents in suit are invalid, and both parties being about to appeal from said Decree, it is hereby stipulated that the furnishing of a bond to secure the cost of the appeal by both sides, be dispensed with.

Dated, New York, March 25th, 1936.

Hauff & Warland, Solicitors for Defendant. Gifford, Scull & Burgess, Solicitors for Plaintiff.

It is Ordered, that the above stipulation be approved.

Dated, Brooklyn, March 26th, 1936.

Marcus B. Campbell, U. S. District Judge.

[fol. 2128] IN UNITED STATES DISTRICT COURT

[Title omitted]

STIPULATION AS TO RECORD

Plaintiff and defendant having appealed in the above entitled cause and said appeals having been allowed, it is hereby stipulated and agreed by and between the solicitors for the respective parties that the following enumerated items shall constitute the transcript of record to be transmitted to the United States Circuit Court of Appeals for the Second Circuit:

1. Bill of Complaint.
2. Answer and counterclaim.
3. Reply to counterclaim.
4. Plaintiff's bill of particulars re claims, December 28, 1934.
5. Defendant's bill of particulars re anticipations, December 31, 1934.
6. Order, January 11, 1935, directing defendant to file bill of particulars.
7. Defendant's bill of particulars, January 18, 1935.
8. Plaintiff's bill of particulars re conception, etc., January 21, 1935.
- [fol. 2129] 9. Plaintiff's motion for further particulars, January 26, 1935.
10. Defendant's bill of particulars, February 6, 1935.
11. Notice, May 7, 1935, re state of art references.
12. Stipulation, December 9, 1935.
13. Minutes of trial in question and answer form.
14. Plaintiff's Exhibits to be reproduced:
 1. McManus Patent No. 1,339,066. Warth Patent No. 1,899,782. Warth Patent No. 1,899,783. Warth Reissue Patent No. 19,117. Warth Patent No. 1,967,195. Warth Patent No. 1,956,481.
 2. Letters dated April 2, April 26 and July 18, 1934, to Ferdinand Gutmann & Co.
 3. Stipulation, April 30, 1935, and translations of French patents No. 463,971 and No. 415,794.
 13. Some interrogatories directed to defendant and answers thereto.
 14. Johnson Patent No. 1,852,578.

15. Cohn Patent No. 1,921,808.
16. Chart of typical machine and procedure for making ordinary crowns.
17. Chart showing how center spot crowns are applied.
21. Chart illustrating Warth method in reissue patent in suit.
22. Another chart showing Warth method.
23. Chart showing method in Johnson and Cohn patents according to stipulation.
- [fol. 2130] 29. List showing production by plaintiff of paper center spot crowns from 1928 to 1934.
30. List showing action of one or more typical purchasers from plaintiff from 1925 on.
31. List showing production by plaintiff of natural cork crowns from 1923 on.
32. List showing production by plaintiff of natural cork crowns from 1917 to date.
33. List showing manufacture by plaintiff of all types of spot crowns, metal foil and paper spot.
34. Record of typical users of metal foil spot crowns.
35. Photograph showing Cuban machine of March 1, 1928.
36. Letter dated October 5, 1928, from Johnson to Armstrong Cork Co.
37. Letters dated April 20 and April 24, 1928, between Johnson and Armstrong Cork Co.
38. Sketch by witness Cohn of machine used for producing Inecto caps.
39. Bill by Gutmann to Inecto, dated May 13, 1925.
40. Memorandum accompanying Plaintiff's Exhibit 39.
41. Photograph of machines shown by McManus to Johnson.
42. Photograph of machines shown by McManus to Johnson.
43. Chart made by witness Goebel showing sequence of steps in operation of machine developed under Goebel's supervision.
- [fol. 2131] 44. Memorandum signed by W. F. Walker produced by witness Goebel.
45. Photographs accompanying Exhibit 44.
50. Appropriation No. 91,036 to cover money available for three aluminum spots to be applied to crown assembling machines, as per blue prints.

51. Paper dated April 15, 1925, referring to scrapping of three slide machines.
52. Photograph produced by witness Goebel showing machine used for combining two strips in one roll.
53. Appropriation No. 91,092 covering combining machine.
54. Appropriation No. 91,133, to cover building of additional gutta percha combined machine.
55. Copy of letter from Warth to Goebel.
56. Paper signed by Goebel relating to invention of Warth on use of varnished paper for spot crowns.
57. Letters dated June 29 and July 24, 1933, relating to equipment for coating.
58. Letter from Warth to Goebel, dated July 11, 1933.
59. Contract tendered to Crown Cork & Seal Co. by Waldron Co.
60. Telegram dated August 3, 1933, with reference to Exhibit 59.
64. Copy of Keller patent 1,081,505.
67. Letters addressed to Dr. Warth, headed M. Stover, with reference to experiments.
68. Copy of letter signed A. H. Warth, to J. W. Cleveland of du Pont Co. at Parlin, dated May 11, 1932.
- [fol. 2132] 69. Letter dated May 9, 1933, from Warth to John Waldron Co.
70. Letter dated May 25, 1933, from Warth to John Waldron Co.
71. Letter dated June 23, 1933, from Warth to Waldron.
72. Memorandum dated July 28, 1933, signed A. H. Warth.
73. Letter dated August 30, 1920, from A. A. Eisenberg to A. H. Warth.
74. Invoice dated April 13, 1927, from Crown Cork & Seal to Burroughs Bros. Co.
75. Letter dated June 30, 1927, from Warth to Burroughs Bros., and similar letter dated July 1, 1927.
76. Two invoices dated August 17 and September 9, 1927, from Crown Cork & Seal Co. to Macomber Orchard Co.
80. Two photographs showing machine as altered within last week by witness Weisenburg.
84. Copy of letter to Gutmann by Crown Cork & Seal Co. offering license, dated March 21, 1933.
85. Certified copy of certain papers from Interference No. 66,201. (Print only the decision of the Examiner of In-

terferences, dated April 14, 1934, the other papers are contained in Defendant's Exhibit YYYY.)

86. Certified copy of certain papers from Interference No. 60,878.

87. Certified copy of File Wrapper and Contents of Johnson patent 1,852,578.

15. Defendant's Exhibits to be reproduced:

[fol. 2133] A. File Wrapper of Warth patent 1,899,783.

B. File Wrapper of application of John Alberti for patent 1,199,026.

E. Affidavit made by Alberti for Crown Cork & Seal Co.

G. Bills dated November 1 and November 20, 1924, to Ferdinand Gutmann & Company by Nagy for dies.

H. Confirmation order of Beechnut Foil Co., dated December 31, 1924, for .0045 pure tin-foil, produced by witness Maculey.

I. Letter from Beechnut Foil Co., dated January 17, 1925, addressed to Ferdinand Gutmann & Co.

J. Confirmation order dated January 19, 1925, from Beechnut Foil Co. to Ferdinand Gutmann & Co., and invoice of January 22, 1925, covering same.

K. Confirmation orders and invoices from Beechnut Foil Co. to Ferdinand Gutmann & Co., from December 31, 1924, to February 21, 1925, five in number.

L. Letters dated January 24 and January 30, 1929, from Reynolds Metal Co.

M. Letter of March 12 from Reynolds Metal Co. to Ferdinand Gutmann & Co.

N. Invoices from Reynolds Metal Co. to Ferdinand Gutmann Co.

O. Letters of February 8 and February 22, 1929, from Reynolds Metal Co. to Ferdinand Gutmann Co.

P. Bill of August 31, 1928, from Johnson to Ferdinand Gutmann & Co.

[fol. 2134] Q. Four bills from September 17, 1928, to April 30, 1929, for assembling machines from Johnson to Gutmann.

R. Four bills from May 16, 1933, to June 19, 1933, from Johnson to Gutmann for machines.

S. Bill dated July 31, 1928, from Johnson to Gutmann for one tin-foil machine with hopper.

T. Orders from Crown Cork & Seal Co. to Johnson, and copies of invoices from Johnson to Crown Cork & Seal Co. for four machines, from March, 1929 to July 3, 1929.

U. Petition to institute public use proceedings filed by Johnson in Interference Proceedings under patent No. 1,852,578.

V. List of machines sold by Johnson like those in patent 1,852,578.

W. Page 19 of Catalog of A. Johnson Machine Works.

X. Bill of Johnson to Gutmann, dated March 18, 1931.

Y. Agreement between Johnson and Crown Cork & Seal Co.

Z. Letter dated December 12, 1933, from Crown Cork & Seal Co. to Johnson.

AA. Assignment from Johnson to Crown Cork & Seal Co.

CC. Invoices dated December 4 and December 11, 1924, from Gutmann to Inecto Co.

DD. Invoice from Gutmann to Inecto, dated January 27, 1925.

EE. Invoice dated February 5, 1925, from Gutmann to Inecto.

[fol. 2135] FF. Invoice dated March 4, 1925, from Gutmann to Inecto.

GG. Invoice dated February 19, 1925, from Gutmann to Inecto.

HH. Letter from Inecto to Gutmann, dated February 4, 1925.

II. Letter from Inecto to Gutmann, dated March 9, 1925.

JJ. Invoice from Gutmann to Inecto, dated March 26, 1925.

KK. Invoice from Gutmann to Inecto, dated March 26, 1925.

LL. Six invoices from Gutmann to Inecto, from March 27, to May 18, 1925.

MM. Copy of letter from Gutmann to Inecto, dated February 19, 1925.

NN. Letter from Bishop Gutta Percha Co. to Gutmann, dated January 6, 1925.

OO. Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 7, 1925.

PP. Invoice from Bishop Gutta Percha Co. to Gutmann, dated December 31, 1924.

QQ. Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 16, 1925.

RR. Invoice from Bishop Gutta Percha Co. to Gutmann, dated January 30, 1925.

SS. Invoice from Bishop Gutta Percha Co. to Gutmann, dated February 11, 1925.

TT. Batch of invoices from Bishop Gutta Percha Co. to Gutmann, from March 23, 1928, to September 27, 1928.

[fol. 2136] UU. Invoice from Peters Bros. to Gutmann, dated April 10, 1929.

VV. Three invoices from Peters Bros. Rubber Co. to Gutmann, dated August 21, September 16 and November 1, 1929.

WW. Three invoices from Peters Bros. Rubber Co. to Gutmann, dated April 21, May 10 and May 15, 1930.

XX. Invoice from Peters Bros. Rubber Co. to Gutmann, dated May 25, 1929.

YY. Three invoices from Peters to Gutmann, dated January 15, April 28 and December 3, 1930.

ZZ. Four invoices from Peters to Gutmann, dated January 6, 1931 to November 1, 1932.

AAA. Two invoices from Peters to Gutmann, dated April 3 and May 15, 1929.

BBB. License agreement between Peters and Crown Cork & Seal Co.

CCC. Certified copy of File Wrapper and contents of patent No. 1,956,481.

DDD. Patent No. 1,956,481 and references set up in defense.

EEE. Certified copy of File Wrapper and contents of patent No. 1,899,782.

FFF. Patent No. 1,899,782 and references set up in defense.

GGG. Certified copy of File Wrapper and contents of re-issue patent No. 19,117.

HHH. Reissue patent No. 19,117 and references set up in defense.

III. Certified copy of File Wrapper and contents of patent No. 1,788,260.

[fol. 2137] JJJ. Certified copy of File Wrapper and contents of original application of Warth Serial No. 360,895, referred to in patent No. 1,899,783.

KKK. Patent No. 1,899,783 and references set up in defense.

LLL. Certified copy of File Wrapper and contents in patent No. 1,967,195 to Warth.

MMM. Patent No. 1,967,195 and references set up in defense.

NNN. Invoice from Gutmann to Goetz Brewing Co., dated August 14, 1928.

OOO. Credit memorandum dated October 2, 1928, from Gutmann to Goetz.

PPP. Invoice dated August 23, from Gutmann to Goetz.

QQQ. Invoice from Gutmann to Goetz dated August 31, 1928.

RRR. Invoice dated September 21, 1928, from Gutmann to Goetz.

SSS. Invoice dated October 26, 1928, from Gutmann to Goetz.

TTT. Bundle of Invoices from Gutmann to Goetz.

VVV. Two letters dated August 22 and August 23, 1928.

WWW. Letter from du Pont to Gutmann, dated May 12, 1932.

XXX. Tabulation of gross shipments of crowns made by Gutmann Co. from 1928 to 1934.

ZZZ. Letter from Crown Cork & Seal Co. to Gutmann, dated December 10, 1928, with attached acknowledgment.

[fol. 2138] CCCC. Paper showing test of pressure of plunger with springs, by Cohn.

DDDD. Two papers covering 100 gross each of crowns with paper spot centers produced by witness Fries.

EEEE. Nine orders from Crown Cap Mfg. Co., dated March 28, 1930, to October 2, 1930, including two without dates, to Ferdinand Gutmann Co. for placing spots on crowns.

FFFF. Letter from Crown Cap Mfg. Co. to Gutmann, dated April 23, 1929.

GGGG. Invoices on stationery of Crown Cork & Seal Co. from June 1 to November 30, 1917.

HHHH. Invoice for inserting spots in 600 gross of caps.

IIII. Invoices from Crown Cork & Seal Co. to Kalak Water Co., July 23, 1920 and August 31, 1920.

JJJJ. Three invoices from Gutmann dated Dec. 16, 1918, July 16 and February 1, 1919, to Kalak Co.

LLLL. Report by Schwarz Laboratories of test on caps secured with center spots using 4620 adhesive for Gutmann.

MMMM. Bill from du Pont Co. to Gutmann, dated April 4, 1933.

OOOO. Original interrogatories to plaintiff and plaintiff's answers to same.

PPPP. Letter from plaintiff to defendant, dated October 13 and letter from defendant to plaintiff, dated October 10, and defendant's reply of October 14.

[fol. 2139] RRRR. Certified copy of preliminary statement of Albin H. Warth in Interference No. 60,931.

SSSS. Affidavit of John J. Darby, dated May 20, 1932.

UUUU. License agreement between Crown Cork & Seal Co. and Lange.

VVVV. Portion of order of U. S. Court for Southern District of New York, recorded on January 31, 1934, in Crown Cork & Seal Co. vs. Pennie, Davis, Marvin & Edmonds.

XXXX. Advertisement in "Spot Crowns" of plaintiff, dated July, 1933.

YYYY. Record of Interference 66,201.

ZZZZ. Patent No. 1,339,066 and references set up in defense.

AAAAA. Certified copy of File Wrapper and contents of application of Albin H. Warth, Serial No. 494,201.

BBBBB. Certified copy of abandoned application of Albin H. Warth, filed August 21, 1926, Serial No. 130,631.

DDDDD. Affidavit of John J. Darby of April 2, 1934, in Interference No. 66,201.

EEEEE. Preliminary statement of Johnson in Interference No. 66,201.

HHHHH. Page 5 of "Beverage Journal," dated June, 1930.

16. Plaintiff's Exhibits to be transmitted as physical exhibits:

4. Cap referred to as "A" in stipulation (Exhibit No. 3). [fol. 2140] 5. Cap referred to as "B" in stipulation (Exhibit No. 3).

6. Cap referred to as "C" in stipulation (Exhibit No. 3).

7. Cap referred to as "D" in stipulation (Exhibit No. 3).

8. Cap referred to as "F" in stipulation (Exhibit No. 3).

9. Strip of foil marked "G" in stipulation (Exhibit No. 3).

10. Strip of foil marked "H" in stipulation (Exhibit No. 3).

11. Strip of foil marked "I" in stipulation (Exhibit No. 3).

12. Paper strip marked "J" in stipulation (Exhibit No. 3).

18. Batch of laminated material referred to by witness Weisenburg.
19. Box of crown caps.
20. Box of so-called White Rock caps.
28. Box containing so-called Rao and glazed paper spot caps manufactured by plaintiff.
46. Machine demonstrated in court by witness Goebel.
47. Blue prints produced by witness Goebel showing changes made in Goebel crown assembler.
48. Typical drawings of preheater mechanism on same machine.
49. Group of drawings with reference to post-heater of plunger following punch on same machine.
61. Strip of material identified by Goebel as such as was made in 1915 and 1916 by Crown Cork & Seal Co. [fol. 2141]
62. Cap identified by Goebel as made from material of Exhibit 61.
63. Original drawings of blue prints marked Plaintiff's Exhibits 47, 48 and 49.
65. Paper spot crowns tested by Cliquot, three in number.
66. Caps given to Mr. Darby by Mr. Warth on February 12, 1932, and papers accompanying same.
77. Roll of tin-foil coated with surgical tissue interlined with wax paper.
78. Envelope containing spot crowns made by Stover in laboratory with thermoplastic cement prior to January 20, 1932.
79. Box of caps with center spot crowns made of Stewart or Nielson method.
81. Bag of regular production natural cork paper backed crowns, dated November 14, 1933, produced by witness Weisenburg.
82. Package of spots produced by witness Weisenburg, having been produced on recently altered machine.
83. Bag of center spot crowns produced by witness Weisenburg, made within last week at Baltimore.
17. Defendant's exhibits to be transmitted as physical exhibits:
 - C. Three corks attached to Alberti affidavit, made under Rule 75, in the Patent Office.
 - [fol. 2142] D. Caps attached to McManus affidavit on file in Patent Office.

F. Strip produced by witness Magy showing gum paper sticking to cork disc.

BB. Cap with letter B on back, purchased by Evans from Gutmann.

UUU. Circular put out by defendant Gutmann.

YYY. Circular of Crown Cork & Seal Co. entitled "Spot Crowns."

AAAA. Factory record slip of Gutmann.

BBBB. Factory record slip from Gutmann for shipments to Wm. Gerst Brewing Co.

KKKK. Type of crown run by Gutmann in August, 1933, when Mr. Fusting and Mr. Darby called.

NNNN. Original can received April 4, 1933.

QQQQ. Cap with B on back, of size made by Gutmann for Inecto.

TTTT. Testimony in Interference No. 60,931.

WWWW. Testimony in Interference between Johnson and Warth.

CCCCC. Photostatic copy of du Pont magazine article, page 60, June and July, 1932.

FFFFF. Cap shown to Mr. Reed, to which he secured a strip of foil with surgical gutta percha.

GGGGG. Letters of January 6 and February 4, 1935, from Standard Crown Co. to Gutmann.

[fol. 2143] 18. Opinion.

19. Stipulation as to findings of fact and conclusions of law.

20. Interlocutory decree.

21. Petition for appeal by defendant.

22. Order allowing defendant's appeal.

23. Assignment of errors by defendant.

24. Citation to plaintiff.

25. Petition for appeal by plaintiff.

26. Order allowing plaintiff's appeal.

27. Assignment of errors by plaintiff.

28. Citation to defendant.

29. Stipulation waiving appeal bonds.

30. Stipulated praecipe and order.

31. Stipulation and order approving statement of evidence.

32. Stipulation and order waiving reduction of testimony to narrative form.

33. Stipulation and order re entire printed record.

34. Clerk's certificate.

It is stipulated and agreed that the title to McManus patent No. 1,339,066 is vested in the plaintiff, Crown Cork & Seal Company, Inc., and that, therefore, plaintiff's exhibits Nos. 24, 25, 26 and 27 may be eliminated from the case.

May 18, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

Order Allowing Praecipe.

It Is so Ordered: Marcus B. Campbell, U. S. District Judge.

[fol. 2144] IN UNITED STATES DISTRICT COURT

[Title omitted]

STIPULATION AS TO RECORD

It is hereby stipulated and agreed, that the foregoing (in 3 vols.) is a true copy of the transcript of the record of the said District Court in the above-entitled matter as agreed on by the parties.

Dated, June —, 1936.

Gifford, Scull & Burgess, Solicitors for Plaintiff.
Hauff & Warland, Solicitors for Defendant.

On reading the foregoing consent of the solicitors for the respective parties herein, It is Ordered that the foregoing printed record be filed in lieu of the original papers for the purpose of certifying a record on appeal.

Dated, June —, 1936.

— — —, U. S. D. J.

[fol. 2145] Clerk's certificate to foregoing transcript omitted in printing.

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2146

[fol. 2146] UNITED STATES CIRCUIT COURT OF APPEALS FOR
THE SECOND CIRCUIT, OCTOBER TERM, 1936

Argued Oct. 6, 1936. Decided Dec. 14, 1936

No. 89

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant and
Appellee,

v.

FERDINAND GUTMANN & COMPANY, Defendant-Appellant and
Appellee

Appeal from the District Court of the United States for
the Eastern District of New York

Before Manton, L. Hand, and Swan, Circuit Judges

Suit in equity by Crown Cork & Seal Company, Inc., charging infringement of six patents, and counterclaim by the defendant charging infringement of a patent owned by it. From a decree which held three of the plaintiff's patents valid and infringed, dismissed the complaint as to the others, and also dismissed the counterclaim, both parties have appealed. Decree modified.

For the opinion below, see (D. C.) 14 F. Supp. 255.

Gifford, Scull & Burgess, of New York City (George F. Scull, of New York City, and John J. Darby, of Washington, D. C., of counsel), for plaintiff.

Hauff & Warland, of New York City (William E. Warland and Francis H. Warland, both of New York City, of counsel), for defendant.

SWAN, Circuit Judge:

The patents in suit relate to a type of bottle closure known as a "spot crown cap" and to methods of making such caps. The plaintiff has appealed in respect to Warth patents No. 1,899,783 (claim 4) and No. 1,956,481 (claims 6 and 16), which were held invalid.¹ McManus patent No. 1,339,066 (claims 3 and 8) and Warth patents reissue 19,117

¹ Warth patent No. 1,899,762 (claims 7 and 9) was also held invalid, but no appeal has been taken as to this.

(claims 1 and 3) and No. 1,967,195 (claims 1, 2 and 3) were held valid and infringed, and as to these the defendant has appealed. The defendant has also appealed from dismissal of its counterclaim for noninfringement of Cohn patent No. 1,921,808.

Long prior to the patents in suit the bottling art. was familiar with crown caps which had no center spot. Such caps were formed of a thin metal shell, containing a cushion disc of natural cork or composition cork adapted to seal the mouth of the bottle when the cap was pressed into engagement with its lip. There were disadvantages, however, in having the contents of the bottle come into contact with the cork disc. Consequently the practice developed of applying to the face of the cork disc a thin sheet of material, such as tin foil or glazed paper, impermeable to the liquid contents of the bottle. This may take the form of an "overall" facing, or of a partial or "spot" facing. In the "overall," the protective foil or paper covers the entire face of the cushion disc. Such a form of crown cap is satisfactory when the contents of the bottle are not under gas pressure, but is likely to result in leakage in the case of pressure beverages. In spot crown caps the protective facing of the cork cushion is a "spot" or disc of such diameter as to extend only part way over the lip of the bottle and permit the rest of the lip to make contact with the cork cushion, thus forming a more perfect seal and at the same time [fol. 2147] preventing the liquid from touching the cork. The chief difficulty in the manufacture of such caps has been in affixing the spot to the cork disc. It must be accurately centered and firmly attached. From 1914 the White Rock Company has used a tin foil spot which is mechanically attached to the cork disc. The patents in suit, however, relate to spots which are adhesively attached by a "fusible binder"; that is, the adhesive must be one which is softened and made sticky by heat, as distinguished from one which has to be moistened to be applied. For the commercial success of spot crown caps it is essential that they be manufactured cheaply and this involves rapidity of assemblage. Operating under the patents in suit the plaintiff applies spots to crowns at the rate of 500 per minute for each operating unit and is able to sell the entire cap at a price of about six for one cent. Its sales amount to about 9 million gross per year.

1. With this brief preliminary exposition we may turn to the patents in suit, of which the first is McManus patent No. 1,339,066, granted May 4, 1920, upon an application filed November 17, 1915. Claims 3 and 8 were in suit and were held valid and infringed. This patent describes and claims a center spot crown cap as an article of manufacture, and the claims in suit require that the spot be united with the cork or composition cushion disc "by means of a fusible binding medium." The specifications explain that crown caps without the center spot were old and were subject to disadvantages because the liquid came into contact with the cork or cork-composition disc. Apparently McManus conceived that his inventive thought was the idea of overcoming these objections by adding the center spot. He was not, however, the originator of spot crown caps. As already noted, the White Rock Company began in 1914 to use mechanically attached spots. DeMuth's British patent No. 16075, issued in July, 1914, upon an application dated July 12, 1913, shows a liquid-resisting spot secured to the cork disc "by cementing or in any other appropriate manner." The United States patent No. 1,199,026 issued in 1918 to Alberti, whose application was dated October 3, 1914, also discloses a spot cemented to the cork disc. Alberti used a moist cement, albumen, which was coagulated and caused to stick by the subsequent application of heat and pressure. Concededly the only new feature, if any, which McManus added was the use of a "fusible binding medium" instead of a moist adhesive. As he points out, a fusible binder between the tin cap and cork cushion was already old, and preferably he specifies the same binding material to attach the spot. Moreover, the Koch patent No. 1,238,156, issued in 1917 on an application filed September 21, 1915, shows a fusible binder, gutta percha, as the medium for attaching the "overall" type of spot. Thus McManus is reduced to the proposition that, although heat fusible adhesives were old for securing discs to caps, and "overalls" to discs, his was the first disclosure with respect to fastening a center spot by such an adhesive. It is impossible to believe that it required ingenuity worthy of the name of invention to take the step of using upon the "spot" the same adhesive used upon the "overall" coating. Nor was this idea immediately seized upon as the solution of an existing problem. Rather the problem, as the history of the development of the industry shows, was to perfect a

machine that would operate with sufficient accuracy and speed to render manufacture commercially successful. McManus himself, though attempting to manufacture spot crown caps, did not utilize commercially the idea of a fusible binder until about 1926. Our conclusion is that claims 3 and 8 are invalid for lack of invention.

2. Warth "Paper Spot" patent No. 1,899,783. This was granted February 28, 1933 on a divisional application filed October 31, 1930, of a parent application filed May 5, 1929. Only claim 4 was in suit; it was held invalid. This claim calls for a crown cap with a center spot "of hard, high-gloss paper having a varnished outer surface" and fastened to the cushion by gutta percha. For high pressure, acidulated beverages, such as ginger ale, tin foil spots were not suitable, because the acid would eat through the foil, thus permitting the beverage to acquire a corky taste and to lose pressure through the pores of the cork or composition cushion. The object of the patent was to avoid the ill effects of the use of tin foil. The only "problem" was to select a facing for the cushion which would withstand the attack of acidulated liquids and be not too thick to bend when pressure was applied in closing the cap [fol. 2148] upon the bottle. A paper facing, varnished to prevent absorption, was old in the art. Smith's patent No. 983,319, of 1911, discloses the use of a varnished manila paper for an "overall" cap-facing. The McManus patent already discussed recommended for the "spot" facing "a hard parchment paper, or any other paper so treated as to make it non-absorbent." The Lange patent No. 1,657,802, issued in 1928, application filed December 16, 1924, used a varnished paper to make a cover for preserve jars and the like. Warth testified that it took experimentation over a considerable period of time to select a paper of the right toughness, density and thinness and a varnish which would impart no flavor to the bottled beverage, but with this prior art we can see no room for invention in what he did, and we agree with the District Court that claim 4 of the Warth paper spot patent shows no novelty or invention and is invalid.

3. Warth patent No. 1,956,481, granted April 24, 1934, application filed June 16, 1933. Claims 6 and 16 were in suit and were held invalid. These claims call for a spot crown cap in which the spot is stuck to the cushion by a

thermoplastic adhesive composed of nitrocellulose and a resin, which is a better adhesive than the conventional gutta percha. Both the plaintiff and the defendant use as an adhesive a preparation manufactured and sold by the du Pont Company under the name "4620." This came on the market in 1932, and became the medium adopted by both litigants, the defendant's commercial use having started in June or July, 1933, and the plaintiff's about one year later. Concededly it is an anticipation of the patent in suit, unless Warth can carry back his date of invention and reduction to practice. This he attempts to do, contending that his date of conception was the fall of 1926 and his reduction to practice at least as early as January, 1932. It is doubtless true that Warth was experimenting in 1926 with nitrocellulose, but he plainly had not then reached the goal, for, according to his own testimony, the mixture he had achieved "was not as good as gutta percha." Not until 1930 did Warth tell McManus of the possibility of using a nitrocellulose-resin cement, and he had not then worked out any formula for the mixture. About a year later McManus asked Weisenberg to work on the idea, without telling him of Warth's previous attempts to find the right mixture. Then in January, 1932, the du Pont Company delivered to the plaintiff a can of "4620" to be tried out as an adhesive for spot crown caps. Warth instructed his secretary to see if it would work, saying, "That is something I have been trying to find, as you know, for a long time." It is possible that Warth had given some ideas to the du Ponts, but it seems plain that they and not he worked them out. The above-quoted statement to Warth's secretary is wholly inconsistent with the contention that "4620" was his own work. So also are the fact that he made an affidavit in December, 1932, speaking of gutta percha as the best of the known adhesives, and the fact that between the fall of 1926 and October 30, 1930, he filed no less than five patent applications, each of which sang the praises of gutta percha and made no mention of nitrocellulose and resin. Under the severe rules applicable to carrying back the date of an invention, Warth has failed to carry the burden of doing so, and we hold that patent No. 1,956,481 was anticipated by "4620."

4. Warth Reissue No. 19,117 dated March 20, 1934. This is a reissue of patent No. 1,788,260 which was applied for

January 7, 1927, and granted January 6, 1931. Application for reissue was filed January 23, 1934. Claims 1 and 3 were in suit and were held valid and infringed. These are process claims for a method of manufacturing spot crown caps. The "spot" material is in the form of a strip of tin foil or liquid-resisting paper, coated on the under side with a thermoplastic adhesive. The patent requires drawing the strip over a die and under a punch, cutting the spot from the strip by the punch, which positions the spot upon the cork disc, "and upon assembly applying simultaneously to the spot pressure and sufficient heat to render the adhesive tacky, thereby causing the spot to adhere" to the cork disc, and then permitting the adhesive to cool and harden. Claim 3 merely adds that the cooling step shall occur "while subjecting the assembled unit to pressure." It is contended by the defendant that, if the claims can be sustained as valid at all, they must be limited to mean that the heat and pressure are applied by the cutting punch; and, if so limited, [fol. 2149] the defendant does not infringe, for the defendant uses a cold cutting punch² which positions the spot on a cork disc previously heated sufficiently to cause the spot to adhere while the cap is carried to the next stage, where a hot plunger applies heat and pressure. We think this contention is well taken.

The parent application originally contained a paragraph which disclosed the preheating step and had claims sufficiently broad to cover it, but on December 3, 1930, the preheating passage was stricken from the specifications, all claims were canceled, and the present first claim was substituted. That left the specifications with the statement that the preferred method of applying the spot material to the cap is "to utilize, at the time of assembly, both heat and pressure," and that "the punch 20 may be maintained at an elevated temperature, as by means of a burrer 23," and left the claim, in so far as it referred to heating, as follows: "And upon assembly applying simultaneously to the spot

² Although we refer to the cutting punch as "cold," it actually gets heat by radiation from the adjacent "pre-heater" and "post heater" plungers so that its temperature may be as high as 140° F., but this is not enough to make the adhesive sufficiently tacky to adhere to the cork unless the latter has been preheated.

pressure and sufficient heat" to cause the spot to adhere. This was the form in which the patent was granted. It clearly means *applying* the heat at the time of pressure, not pressure by a cold punch on an already heated crown. Further considerations lead to the same conclusion, namely that the claims require the heat and pressure to be applied by the cutting punch. In the plaintiff's "slide machine," which goes back to 1917, a strip of spot material and a strip of adhesive (gutta percha) were drawn beneath the punch which descended to cut the spot and deposit it upon a slide member, which then passed under a heated plunger with a suction device which sucked up the spot and held it until a cap containing the cork disc passed beneath, when the plunger descended, pressing the spot upon the cork. While the mechanism of the slide machine is quite different from that of the machine by which Warth's process is applied, it must be remembered that his patent is not for the machine but for a method of manufacture involving cutting the spot and causing it to adhere to the cork disc by the application of heat and pressure. To read the claims of the reissue patent to mean a cold punch to cut the spot and a hot plunger applied later to fasten it to the cork disc would make them invalid under the old "slide machine." To read them to mean a cold punch which positions the spot upon a preheated cork would be inconsistent with the fact that the preheating specification was deliberately divided out and later claimed in Warth's "preheating patent" hereafter to be discussed. Consequently we conclude that the defendant's method of manufacture does not infringe claims 1 and 3 of reissue No. 19,117.

5. Warth "preheating" patent No. 1,967,195. This was granted July 17, 1934, upon a divisional application filed April 4, 1933. Claims 1, 2, and 3 are in suit and were held valid and infringed. They are process claims for the preheating method already referred to. The cork disc in the cap is heated before it passes under the cutting punch which positions the spot on the cork. The heat of the cork makes the adhesive of the spot tacky, so that the pressure of the cutting punch causes it to adhere. At the next step a heated plunger is pressed down on the spot; then it is passed under a cold plunger and kept under pressure until the adhesive has cooled. Each of the claims in suit calls for "heating the pads in the caps"; that is, for preheating

of the cork disc before the spot is positioned upon it. This is the feature which distinguishes the patent from the prior reissue. It is the process used by both the plaintiff and the defendant. The defendant infringes, if the claims are valid. We think they are invalid for laches in filing the application for them. *Webster Co. v. Splitdorf Co.*, 264 U. S. 463, 44 S. Ct. 342, 68 L. Ed. 792.

The parties are in dispute as to the effective date of application for the claims in suit, the defendant contending for the day the claims were actually filed, namely, April 4, 1933, and the plaintiff for the date of the parent application, namely, January 7, 1927. As already explained, the reference to preheating in the parent application was [fol. 2150] stricken out on December 3, 1930. Previously, on November 7, 1930, Warth had filed a divisional application No. 494,201 to which he had transferred the preheating method; it claimed only the spot material strip as an article of manufacture. As we have previously shown, Warth's patents No. 1,788,260 and reissue 19,117 contained no claims broad enough to cover preheating. Hence there was no claim for the preheating method on file in the Patent Office from December 3, 1930, until April 4, 1933, when Warth applied by his second divisional application for the preheating patent. The disclosure, however, had been continuously on file since January 7, 1927; and so the plaintiff contends that it is entitled to that filing date. We do not so understand the law, as laid down in *Webster Co. v. Splitdorf Co.*, 264 U. S. 463, 471, 44 S. Ct. 342, 344, 68 L. Ed. 792. Prima facie the two-year time limit applies to divisional applications, and an applicant who waits longer before claiming the invention disclosed in his application must justify his delay by proof of some excuse. No such excuse appears here. Had Warth chosen to retain in his parent application broad generic claims which might cover the preheating method, then indeed the Splitdorf rule might not be applicable. *Carson v. American Smelting & Refining Co.*, 4 F. (2d) 463, 470 (C. C. A. 9). The delay would be excused since a patentee is not to be held at fault for failure to have divided his claims at an earlier date, merely because he might have, when instead he had elected to prosecute the broader claims of his original application. *Hartford-Empire Co. v. Nivison-Weiskopf Co.*, 58 F. (2d)

701 (C. C. A. 6). But, in the case at bar, for a period of more than two years Warth apparently did not wish to claim the preheating method, having deliberately canceled the preheating specification from his original application and shaped his claims so as to exclude it and his patent having been granted January 6, 1931. He made no claim for preheating until more than two years thereafter, namely, April 4, 1933. In the meantime a patent containing claims for the preheating method had been granted to Johnson on April 5, 1932, and it was Warth's discovery of this fact which stirred him to action. As in the Splitdorf Case, had it not been for this competitor, Warth might never have considered the subject worth claiming as an invention. These circumstances invite operation of the two-year limitation designed to protect the public against obtaining in effect an extension of a patentee's monopoly by apathy and unexcused delay in bringing forward by divisional or re-issue applications claims broader than those originally sought. See *Westinghouse Electric & Mfg. Co. v. Jeffrey-DeWitt Insulator Co.*, 22 F. (2d) 277 (C. C. A. 2); *Wagenhorst v. Hydraulic Steel Co.*, 27 F. (2d) 27, 29 (C. C. A. 6); *Otis Elevator Co. v. Atlantic Elevator Co.*, 47 F. (2d) 545, 549 (C. C. A. 2); *Wirebounds Patents Co. v. Saranac Automatic Machine Corp.*, 65 F. (2d) 904 (C. C. A. 6); compare *Phelan v. Green*, 71 F. (2d) 298, 301 (Cust. & Pat. App.).

6. By counterclaim the defendant charged infringement of patent No. 1,921,808 to Cohn. The counterclaim was dismissed on the ground of noninfringement. This was plainly right; the plaintiff had neither infringed nor threatened to do so.

For the reasons stated in the foregoing opinion, the plaintiff should have been denied relief upon all its patents. The interlocutory decree is modified, and the cause remanded, with directions to dismiss the bill of complaint.

[fol. 2151] UNITED STATES CIRCUIT COURT OF APPEALS FOR
THE SECOND CIRCUIT, OCTOBER TERM, 1936

Argued Oct. 6, 1936. Decided Dec. 14, 1936

No. 89

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant
and Appellee,

v.

FERDINAND GUTMANN & COMPANY, Defendant-Appellant
and Appellee

Appeal from the District Court of the United States for the
Eastern District of New York

Before Manton, L. Hand, and Swan, Circuit Judges

MANTON, Circuit Judge (dissenting):

The District Judge entered a decree for the plaintiff holding the McManus patent No. 1,339,066, Warth patents re-issue No. 19,117 and No. 1,967,195 valid and infringed. He dismissed the complaint on the merits as to the Warth patents No. 1,899,782, No. 1,899,783, and No. 1,956,481. I agree with his reasons and conclusions which are fully and ably stated in *Crown Cork & Seal Co. v. Gutman & Co.* (D. C.), 14 F. Supp. 255.

I accordingly dissent from the modification of the decree.

[fol. 2152] UNITED STATES CIRCUIT COURT OF APPEALS, SEC-
OND CIRCUIT

At a Stated Term of the United States Circuit Court of Appeals, in and for the Second Circuit, held at the United States Court House, in the City of New York, on the 21st day of December, one thousand nine hundred and thirty-six.

Present: Hon. Martin T. Manton, Hon. Learned Hand, Hon. Thomas W. Swan, Circuit Judges.

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant,

vs.

FERDINAND GUTMANN & COMPANY, Defendant-Appellant

Appeal from the District Court of the United States for
the Eastern District of New York

This cause came on to be heard on the transcript of record from the District Court of the United States for the Eastern District of New York, and was argued by counsel.

On Consideration Whereof, it is now hereby ordered, adjudged, and decreed that the Decree of said District Court be and it hereby is modified with costs to the defendant and cause remanded with directions to dismiss the bill of complaint.

It is further ordered that a mandate issue to the said District Court in accordance with this decree.

Wm: Parkin, Clerk.

[fols. 2153-2170] [Endorsed:] United States Circuit Court of Appeals, Second Circuit. Crown Cork & Seal Company, Inc., vs. Ferdinand Gutmann & Company. Order for mandate. United States Circuit Court of Appeals, Second Circuit. Filed Dec. 21, 1936. William Parkin, Clerk.

[fol. 2171] UNITED STATES CIRCUIT COURT OF APPEALS FOR
THE SECOND CIRCUIT

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant
and Appellee,

against

FERDINAND GUTMANN & COMPANY, Defendant-Appellant and
Appellee

Before Manton, L. Hand and Swan, Circuit Judges

Gifford, Scull & Burgess, Esqs., Solicitors for Plaintiff.
George F. Scull, John J. Darby, of Counsel.

PER CURIAM:

Petition for rehearing denied.

— — —, Circuit Judges.

Filed January 22, 1937.

[fol. 2172] UNITED STATES CIRCUIT COURT OF APPEALS,
SECOND CIRCUIT

At a stated term of the United States Circuit Court of Appeals, in and for the Second Circuit, held at the United States Court House, in the City of New York, on the 22nd day of January, one thousand nine hundred and thirty-seven.

Present: Hon. Martin T. Manton, Hon. Learned Hand, Hon. Thomas W. Swan, Circuit Judges.

CROWN CORK & SEAL COMPANY, INC., Plaintiff-Appellant,

vs.

FERDINAND GUTMANN & COMPANY, Defendant-Appellant

A petition for a rehearing having been filed herein by counsel for the Plaintiff;

Upon consideration thereof, it is

Ordered that said petition be and hereby is denied.

Wm. Parkin, Clerk.

[fol. 2173] [Endorsed:] United States Circuit Court of Appeals, Second Circuit. Crown Cork & Seal Company, Inc., vs. Ferdinand Gutmann & Company. Order. United States Circuit Court of Appeals, Second Circuit. Filed Jan. 22, 1937. William Parkin, Clerk.

[fol. 2174] UNITED STATES OF AMERICA,
Southern District of New York:

I, William Parkin, Clerk of the United States Circuit Court of Appeals for the Second Circuit, do hereby certify that the foregoing pages, numbered from 1 to 2173, inclusive, in 3 volumes, contain a true and complete transcript of the record and proceedings had in said Court, in the case of Crown Cork & Seal Company, Inc., Plaintiff-Appellant, against Ferdinand Gutmann & Company, Defendant-Appellant, as the same remain of record and on file in my office.

In Testimony Whereof, I have caused the seal of the said Court to be hereunto affixed, at the City of New York, in the Southern District of New York, in the Second Circuit, this eighteenth day of February, in the year of our Lord° one thousand nine hundred and thirty-seven, and of the Independence of the said United States the one hundred and sixty-first.

Wm. Parkin, Clerk. (Seal United States Circuit Court of Appeals, Second Circuit.)

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SUPREME COURT OF THE UNITED STATES, OCTOBER TERM, 1936

No. —

CROWN CORK & SEAL COMPANY, INC., Petitioner,

vs.

FERDINAND GUTMANN & Co., INC.

ORDER EXTENDING TIME WITHIN WHICH TO APPLY FOR WRIT
OF CERTIORARI

On consideration of the motion of counsel for petitioner in the above entitled cause, and good cause therefor having been shown,

It Is Ordered that the time within which petition for writ of certiorari may be filed herein be, and the same is hereby, extended for a period of 30 days from April 22, 1937.

Harlan F. Stone, Associate Justice of the Supreme Court of the United States.

Dated this 8th day of April, 1937.

fol. 2176] SUPREME COURT OF THE UNITED STATES

ORDER ALLOWING CERTIORARI—Filed October 11, 1937.

The petition herein for a writ of certiorari to the United States Circuit Court of Appeals for the Second Circuit is granted. And it is further ordered that the duly certified copy of the transcript of the proceedings below which accompanied the petition shall be treated as though filed in response to such writ.

Mr. Justice Black took no part in the consideration and decision of this application.

Endorsed on cover: File No. 41,548. U. S. Circuit Court of Appeals, Second Circuit. Term No. 72. Crown Cork & Seal Company, Inc., petitioner, vs. Ferdinand Gutmann Co., Inc. Petition for a writ of certiorari and exhibit thereto. Filed May 20, 1937. Term No. 72, O. T., 1937.